B 52/2/v.2

Biological Services Program

FWS/OBS-77/51
March 1980

Biological Impacts of Minor Shoreline Structures on the Coastal Environment: State of the Art Review

VOLUME II

Fish and Wildlife Service

U.S. Department of the Interior

I 49.2:

The Biological Services Program was established within the U.S. Fish and Wildlife Service to supply scientific information and methodologies on key environmental issues that impact fish and wildlife resources and their supporting ecosystems. The mission of the program is as follows:

- To strengthen the Fish and Wildlife Service in its role as a primary source of information on national fish and wildlife resources, particularly in respect to environmental impact assessment.

- To gather, analyze, and present information that will aid decisionmakers in the identification and resolution of problems associated with major changes in land and water use.

- To provide better ecological information and evaluation for Department of the Interior development programs, such as those relating to energy development.

Information developed by the Biological Services Program is intended for use in the planning and decisionmaking process to prevent or minimize the impact of development on fish and wildlife. Research activities and technical assistance services are based on an analysis of the issues a determination of the decisionmakers involved and their information needs, and an evaluation of the state of the art to identify information gaps and to determine priorities. This is a strategy that will ensure that the products produced and disseminated are timely and useful.

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The Biological Services Program consists of the Office of Biological Services in Washington, D.C., which is responsible for overall planning and management; National Teams, which provide the Program's central scientific and technical expertise and arrange for contracting biological services studies with states, universities, consulting firms, and others; Regional Staff, who provide a link to problems at the operating level; and staff at certain Fish and Wildlife Service research facilities, who conduct inhouse research studies.

FWS/OBS-77/51
March 1980

BIOLOGICAL IMPACTS OF MINOR SHORELINE STRUCTURES ON THE COASTAL ENVIRONMENT: STATE OF THE ART REVIEW

Volume II

DATA PRINTOUT

by

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For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402

PREFACE

This report was written for fish and wildlife biologists who review permits for the construction of minor shoreline structures in the coastal environment, and was submitted in fullfilment of Contract 14-16-0008-2153.

Any suggestions or questions regarding this review should be directed to:

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The correct citation for this report is:

Mulvihill, E. L., C. A. Francisco, J. B. Glad, K. B. Kaster, and R. E. Wilson. 1980. Biological impacts of minor shoreline structures on the coastal environment: state of the art review. U.S. Fish and Wildlife Service, Biological Services Program. FWS/OBS-77/51. 2 vol.

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SUMMARY

Beak Consultants Incorporated conducted a state of the art review of the biological impacts of minor shoreline structures on the coastal environment. The types of structures included in this study were as follows: breakwaters, jetties, groins, bulkheads, revetments, ramps, piers, and other support structures, buoys and floating platforms, harbors for small crafts, bridges, and causeways.

A total of 555 information sources were obtained of which approximately 220 references were found by commercial bibliographic searches. Other sources were located by cross referencing from identified sources; visiting key libraries; interviewing and sending questionnaires to institutions, government agencies, and individuals who might have had useful information.

Information was extracted from the literature and compiled by type of shoreline structure and by coastal region. The following categories of information were sought: structure functions; site characteristics; geographic prevalence; engineering, socioeconomic and biological placement constraints; construction materials; expected life span; environmental conditions, methodology of environmental impact studies; physical and biological impacts; and structural and nonstructural alternatives.

Existing information was evaluated and a text was prepared (Volume I). An annotated bibliography, keyword index, and primary author reference number index were produced from the data base (Volume II).

This state of the art review summarizes and evaluates the information found in the literature for each type of structure. Areas requiring additional study are delineated. Germane studies in progress are identified, and selected case histories depicting the impacts of shoreline structures are presented as part of the review.

The impact of any structure on the coastal environment is site-specific and should be considered on a case-by-case basis. Few studies were found which quantitatively investigated the impacts of specific structures.

Structures which appear to have the greatest potential for impacting the coastal environment are small boat harbors, bridges and causeways, bulkheads, breakwaters, and jetties. Those with moderate impact potential are revetments, groins, and ramps. Low-impact potential structures include buoys and floating platforms, and piers, pilings and other support structures. Based on this classification scheme and the number and types of information sources located, bridges, causeways, and small boat harbors have received very little study relative to their potential impacts.

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LIST OF ABBREVIATIONS

BEB	Beach Erosion Board
BIO	biological
CERC	Coastal Engineering Research Center
CR 1	North Pacific: Canadian border south to Point Pinos, California
CR 2	Southern California: Point Pinos, California to Imperial Beach, California
CR 3	Gulf of Mexico: Port Isabel, Texas to Terra Ceia, Florida
CR 4	Southern Florida: Terra Ceia, Florida to Cape Canaveral, Florida
CR 5	South Atlantic: Cape Canaveral, Florida to Cape Hatteras, North Carolina
CR 6	Middle Atlantic: Cape Hatteras, North Carolina to Coney Island, New York
CR 7	North Atlantic: Coney Island, New York north to Canadian border
CR 8	Great Lakes: Great Lakes area
EIA	environmental impact assessment
EIS	environmental impact statement
ENG	engineering
GENERAL	information which is not specific to one coastal region
GOVREP	government inter- or intra- agency report
INT	interview
LITREV	literature review
MSPREP	manuscript in preparation/press
Pers. Comm.	personal communication
PUB	published
REF. NO.	reference number
UNPUB	unpublished

INTRODUCTION

This volume contains a printout of the data base which was used to prepare Biological Impacts of Minor Shoreline Structures on the Coastal Environment: State of the Art Review, Volume I.

The printout contains information about:

o Breakwaters	o Structure supports
o Jetties	o Buoys
o Groins	o Floating platforms
o Bulkheads	o Harbors
o Revetments	o Bridges
o Ramps	o Causeways
o Piers	o Dredge/fill
o Pilings	

Information that was related to the above structures and which fell into one of the categories in Table 1 was extracted from the literature and entered into the data base by category. The information in each of the categories is presented either by coastal region or as general information. Information may be traced back to its source by noting the reference number which accompanies each listing and referring to the author reference number index and annotated bibliography.

It should be noted that the ratings of the references which appear on this printout reflect only a given article's usefulness and applicability to the project and not its scientific validity or excellence.

This printout served as one means of integrating and organizing the information contained in the literature for purposes of preparing the state of the art review. The data in the printout is a summary of information from each source as it related to the outline in Table 1 and is not inclusive of all information contained in an article. All persons using this volume should refer to the original article for verification of information and to the Volume I.

Table 1. Types of information contained in the data base.

- Local name of structure
- Structure function(s)
- Prevalence in coastal region
- Geographical location of structure
    - Town and state
    - Name of waterway
- Site characteristics
    - Placement relative to shoreline
    - Elevation/depth of structure
- Placement constraints
    - Engineering
    - Socioeconomic
    - Biological
    - Others
- Alternate locations
- Alternate structures considered
- Construction materials
- Expected life span of structure
- Availability of construction plans
- Unaltered conditions/environment
    - General characteristics
    - Shoreline topography
    - Substrate
    - Environmental factors
    - Flora
    - Vertebrate fauna
    - Invertebrate fauna
    - Ecological interrelationships
    - Others
- Altered conditions/environment
    - General characteristics
    - Shoreline topography
    - Substrate
    - Environmental Factors
    - Flora
    - Vertebrate fauna
    - Invertebrate fauna
    - Ecological interrelationships
    - Physical impacts from construction
    - Biological impacts from construction
    - Physical impacts from presence of structure and accumulation of structures within a coastal zone
    - Biological impacts from presence of structure and accumulation of structures within a coastal zone
    - Others
- Environmental impact methodology
- Research in progress at time of publication

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0415	NEW YORK DEPARTMENT OF TRANSPORTATION
0416	SLAWSON, J.
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0418	U.S. ARMY ENGINEER DISTRICT, ST. PAUL
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0422	CARTER, C.H.
0423	STOCKLEY, C.
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0430	NATIONAL SEA GRANT DEPOSITORY
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0444	MCALLISTER, R.
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0447	MINISTRY OF THE ENVIRONMENT
0448	UNIVERSITY OF MICHIGAN, LAKE HYDRAULICS LABORATORY
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0452	U.S. ARMY ENGINEER DISTRICT, DETROIT
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0454	BRUUN, P.
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0456	ROY MANN ASSOCIATES
0457	U.S. DEPT. OF COMMERCE
0458	DANTIN, E.J.
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0460	STEPHENS, J.S., JR
0461	U.S. ARMY ENGINEER DISTRICT, BUFFALO
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0464	SWEENEY, W.D.
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0467	CARROLL, A.
0468	ANGAS, W.M.
0469	CARSTEA, D.
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0489	BRATER, E.F.
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0500	MICHIGAN DEPARTMENT OF NATURAL RESOURCES

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0501	HARRIS, A.J.
0502	CANDLE, R.D.
0503	CHRISTENSEN, D.R.
0504	COLONELL, J.M.
0505	FREY, K.P.H.
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0507	SETHNESS, F.D., JR.
0508	NASSAU-SUFFOLK REGIONAL PLANNING BOARD
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0511	BIRD, E.C.F.
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0514	SMITH, F.G.W.
0515	SKINNER, F.W.
0516	VAN WEELE, B.J.
0517	CHESAPEAKE RESEARCH CONSORTIUM, INC.
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0534	NEW ENGLAND RIVER BASINS COMMISSION
0535	STANSBY, M.E.
0536	LOS ANGELES COUNTY
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0538	GREAT LAKES BASIN COMMISSION
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0544	DAVIS, J.H.
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0546	PAINTER, W.T.
0547	U.S. ARMY ENGINEER DISTRICT, ST. PAUL
0548	U.S. ARMY ENGINEER DISTRICT, NEW YORK
0549	GOSSELINK, J.G.
0550	MCCAULEY, J.E.
0551	CRONIN, L.E.
0552	GEORGIA DEPARTMENT OF NATURAL RESOURCES
0553	BAUER, W.
0554	FLORIDA BUREAU OF ENVIRONMENTAL PROTECTION
0555	BYRNE, R.J.

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0529	AQUATIC PLANTS, BENTHOS, CR 3, DREDGE/FILL, FISH, HABITAT, SEDIMENTATION, SHELLFISH, SPAWNING
0121	AQUATIC PLANTS, BIRDS, CR 3, CR 4, CR 5, DIKE, HABITAT
0296	AQUATIC PLANTS, BREAKWATER, BULKHEAD, CR 1, FISH, HABITAT, MIGRATION, PROTECT, SPAWNING, SUBSTRATE
0306	AQUATIC PLANTS, BREAKWATER, CR 1, HARBOR, RECREATION
0371	AQUATIC PLANTS, BRIDGE, CAUSEWAY, CR 4, CUMULATIVE EFFECTS, FISH, LAND PLANTS, REVETMENT
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0290	AQUATIC PLANTS, CR 2, HABITAT, HARBOR, JETTY, SHELLFISH, STABILIZE, SUCCESSION
0325	AQUATIC PLANTS, CR 2, HABITAT, JETTY, SHELLFISH, SUCCESSION
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0015	AQUATIC PLANTS, CR 7, HARBOR, MOORING, PRODUCTIVITY
0364	AQUATIC PLANTS, DREDGE/FILL, FISH, GROIN, INVERTEBRATES, JETTY, NURSERY, SHELLFISH
0078	AQUATIC PLANTS, ECONOMICS, HABITAT
0511	AQUATIC PLANTS, STABILIZE, SUCCESSION
0036	BEAUTIFY, BREAKWATER, BULKHEAD, ECONOMICS, EROSION, GROIN, HARBOR, HARBOR, JETTY, LITTORAL PROCESSES, PILING, PROTECT, RECREATION, REVETMENT, STABILIZE
0211	BEAUTIFY, CR 5, DREDGE/FILL, LITTORAL PROCESSES, NESTING, RESEARCH NEEDS, TURTLES
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0180	BENTHOS, BREAKWATER, CR 1, HABITAT, HARBOR, RECREATION, SEDIMENTATION
0208	BENTHOS, BREAKWATER, DREDGE/FILL, EROSION, GROIN, JETTY, PROTECT, REVETMENT, SEDIMENTATION
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0353	BENTHOS, BREAKWATER, CR 8, DREDGE/FILL, HABITAT, HARBOR, RECREATION
0354	BENTHOS, BREAKWATER, CR 8, DREDGE/FILL, HARBOR, SEDIMENTATION
0358	BENTHOS, BREAKWATER, CR 8, DREDGE/FILL, FISH, HABITAT, HARBOR, PIER, PLANKTON
0359	BENTHOS, BREAKWATER, CR 8, DREDGE/FILL, FISH, HABITAT, HARBOR, REVETMENT
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0529	BENTHOS, CR 3, DREDGE/FILL, FISH, HABITAT, SEDIMENTATION, SHELLFISH, SPAWNING, AQUATIC PLANTS
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0399	BENTHOS, CR 5, DREDGE/FILL, FISH, HABITAT, HARBOR, INVERTEBRATES, JETTY, SHELLFISH
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0029	BREAKWATER, BULKHEAD, CR 1, FISH, HARBOR, PROTECT, SHELLFISH
0036	BREAKWATER, BULKHEAD, ECONOMICS, EROSION, GROIN, HARBOR, HARBOR, JETTY, LITTORAL PROCESSES, PILING, PROTECT, RECREATION, REVETMENT, STABILIZE, BEAUTIFY
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0156	BREAKWATER, EROSION, HARBOR, PROTECT
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0126	BRIDGE, BULKHEAD, CAUSEWAY, DREDGE/FILL, EROSION, GROIN, HABITAT, HARBOR, PIER, SEDIMENTATION, BREAKWATER
0181	BRIDGE, BULKHEAD, CAUSEWAY, DREDGE/FILL, GROIN, HARBOR, JETTY, PIER, REVETMENT
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0181	BULKHEAD, CAUSEWAY, DREDGE/FILL, GROIN, HARBOR, JETTY, PIER, REVETMENT, BRIDGE
0247	BULKHEAD, CAUSEWAY, DREDGE/FILL, GROIN, HABITAT, HARBOR, JETTY, PIER, PILING, PRODUCTIVITY, SEDIMENTATION, BREAKWATER, BRIDGE
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0320	BULKHEAD, CR 3, DREDGE/FILL, EROSION, GROIN, JETTY, LITTORAL PROCESSES, PROTECT, REVETMENT, BREAKWATER
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0181	CAUSEWAY, DREDGE/FILL, GROIN, HARBOR, JETTY, PIER, REVETMENT, BRIDGE, BULKHEAD
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0459	FISH, HABITAT, HARBOR, SEDIMENTATION, BENTHOS, BREAKWATER, CR 8, DREDGE/FILL
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0479	GROIN, JETTY, PIER, PROTECT, REVETMENT, STABILIZE, TRAINING, BREAKWATER, BULKHEAD, CR 3, CR 4, CR 5
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0273	LAND PLANTS, PRODUCTIVITY, SHELLFISH, SUCCESSION, BIRDS, CR 6, HABITAT, INVERTEBRATES
0092	LAND PLANTS, PROTECT, CR 5, CR 6, EROSION
0187	LAND PLANTS, PROTECT, SUBSTRATE, CR 7, DREDGE/FILL
0221	LAND PLANTS, PROTECT, STABILIZE, CR 8, EROSION
0289	LAND PLANTS, PROTECT, CR 5, EROSION
0315	LAND PLANTS, PROTECT, CR 3, CR 4, CR 5
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0110	LAND PLANTS, STABILIZE, CR 5, CR 6, DREDGE/FILL
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0397	LAND TRANSPORT, CAUSEWAY
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0549	LAND TRANSPORT, PRODUCTIVITY, BRIDGE, CAUSEWAY, ECONOMICS, LAND PLANTS
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0469	LAUNCH, MOORING, PIER, PRODUCTIVITY, PROTECT, RAMP, RECREATION, SUPPORT, SUPPORT, BULKHEAD, CR 3, CUMULATIVE EFFECTS, HABITAT
0519	LAUNCH, MOORING, PIER, CR 3, CR 3, CR 4, CR 4, CR 5, CR 5, DREDGE/FILL, HARBOR
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0099	LEGAL, MOORING, SEDIMENTATION, CR 6, CUMULATIVE EFFECTS, DREDGE/FILL, HARBOR
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0028	LITTORAL PROCESSES, SEDIMENTATION, STABILIZE, EROSION, GROIN
0033	LITTORAL PROCESSES, STABILIZE, CR 1, EROSION, JETTY
0036	LITTORAL PROCESSES, PILING, PROTECT, RECREATION, REVETMENT, STABILIZE, BEAUTIFY, BREAKWATER, BULKHEAD, ECONOMICS, EROSION, GROIN, HARBOR, HARBOR, JETTY
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0049	LITTORAL PROCESSES, CR 1, DREDGE/FILL, EROSION, JETTY
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0252	LITTORAL PROCESSES, DREDGE/FILL, EROSION, LITTORAL PROCESSES
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0424	LITTORAL PROCESSES, REVETMENT, BREAKWATER, BULKHEAD, JETTY
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0298	MIGRATION, PROTECT, SPAWNING, SUBSTRATE, AQUATIC PLANTS, BREAKWATER, BULKHEAD, CR 1, FISH, HABITAT
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0427	MOORING, PIER, BOAT HOIST, CR 8, LAUNCH
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0188	MOORING, PIER, PILING, PROTECT, SUPPORT, BULKHEAD, CR 6, GROIN, HARBOR
0046	MOORING, PIER, PRODUCTIVITY, PROTECT, REVETMENT, SEDIMENTATION, STABILIZE, BENTHOS, BULKHEAD, CR 6, CR 7, DREDGE/FILL, EROSION, FISH, GROIN, HABITAT, JETTY
0414	MOORING, PIER, PRODUCTIVITY, PROTECT, RAMP, REVETMENT, BULKHEAD, CR 8, HABITAT, LAUNCH
0469	MOORING, PIER, PRODUCTIVITY, PROTECT, RAMP, RECREATION, SUPPORT, SUPPORT, BULKHEAD, CR 3, CUMULATIVE EFFECTS, HABITAT, LAUNCH
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0211	NESTING, RESEARCH NEEDS, TURTLES, BEAUTIFY, CR 5, DREDGE/FILL, LITTORAL PROCESSES

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0551	NURSERY, PRODUCTIVITY, RESEARCH NEEDS, SEDIMENTATION, SHELLFISH, SPAWNING, BENTHOS, DREDGE/FILL, FISH, GROIN, JETTY
0370	NURSERY, REVETMENT, SHELLFISH, CR 3, CR 4, CR 5, JETTY
0109	NURSERY, SALINITY, FISH, INVERTEBRATES
0364	NURSERY, SHELLFISH, AQUATIC PLANTS, DREDGE/FILL, FISH, GROIN, INVERTEBRATES, JETTY
0052	PIER, BENTHOS, BULKHEAD, CR 1, FISH, INVERTEBRATES
0206	PIER, BIRDS, CR 6, FISH, INVERTEBRATES, MIGRATION
0427	PIER, BOAT HOIST, CR 8, LAUNCH, MOORING
0366	PIER, BREAKWATER, BULKHEAD, CR 1, HARBOR
0207	PIER, BRIDGE, BULKHEAD, CR 3, CR 4, CR 5, DREDGE/FILL, HARBOR
0380	PIER, BULKHEAD, CR 1, FISH, HARBOR, JETTY
0519	PIER, CR 3, CR 3, CR 4, CR 4, CR 5, CR 5, DREDGE/FILL, HARBOR, LAUNCH, MOORING
0431	PIER, CR 3, DREDGE/FILL
0330	PIER, CR 5
0155	PIER, PILING, BULKHEAD, INVERTEBRATES
0247	PIER, PILING, PRODUCTIVITY, SEDIMENTATION, BREAKWATER, BRIDGE, BULKHEAD, CAUSEWAY, DREDGE/FILL, GROIN, HABITAT, HARBOR, JETTY
0188	PIER, PILING, PROTECT, SUPPORT, BULKHEAD, CR 6, GROIN, HARBOR, MOORING
0401	PIER, PILING, RAMP, REVETMENT, BULKHEAD, HARBOR, JETTY
0119	PIER, PILING, REVETMENT, BREAKWATER, BULKHEAD, GROIN, HARBOR, JETTY, LITTORAL PROCESSES
0481	PIER, PILING, REVETMENT, BULKHEAD, DREDGE/FILL, GROIN, HARBOR
0358	PIER, PLANKTON, BENTHOS, BREAKWATER, CR 8, DREDGE/FILL, FISH, HABITAT, HARBOR
0046	PIER, PRODUCTIVITY, PROTECT, REVETMENT, SEDIMENTATION, STABILIZE, BENTHOS, BULKHEAD, CR 6, CR 7, DREDGE/FILL, EROSION, FISH, GROIN, HABITAT, JETTY, MOORING
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0469	PIER, PRODUCTIVITY, PROTECT, RAMP, RECREATION, SUPPORT, SUPPORT, BULKHEAD, CR 3, CUMULATIVE EFFECTS, HABITAT, LAUNCH, MOORING
0392	PIER, PROTECT, BREAKWATER, BULKHEAD, DREDGE/FILL, GROIN, HARBOR, JETTY
0345	PIER, PROTECT, BULKHEAD, CR 6, EROSION
0176	PIER, PROTECT, REVETMENT, STABILIZE, SUPPORT, BRIDGE
0347	PIER, PROTECT, REVETMENT, CR 6, EROSION, MOORING
0348	PIER, PROTECT, REVETMENT, CR 6, EROSION, MOORING
0479	PIER, PROTECT, REVETMENT, STABILIZE, TRAINING, BREAKWATER, BULKHEAD, CR 3, CR 4, CR 5, GROIN, JETTY
0224	PIER, PROTECT, STABILIZE, BULKHEAD, CR 5, MOORING
0011	PIER, REEF, CR 1, FISH, HABITAT
0181	PIER, REVETMENT, BRIDGE, BULKHEAD, CAUSEWAY, DREDGE/FILL, GROIN, HARBOR, JETTY
0085	PIER, REVETMENT, SEDIMENTATION, BENTHOS, BULKHEAD, GROIN, JETTY
0126	PIER, SEDIMENTATION, BREAKWATER, BRIDGE, BULKHEAD, CAUSEWAY, DREDGE/FILL, EROSION, GROIN, HABITAT, HARBOR
0319	PIER, SEDIMENTATION, BULKHEAD, CR 6, CUMULATIVE EFFECTS, DREDGE/FILL, HABITAT
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0467	PILING, BRIDGE, BULKHEAD, CAUSEWAY, CR 7, GROIN, HARBOR, JETTY
0530	PILING, BULKHEAD
0155	PILING, BULKHEAD, INVERTEBRATES, PIER
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0247	PILING, PRODUCTIVITY, SEDIMENTATION, BREAKWATER, BRIDGE, BULKHEAD, CAUSEWAY, DREDGE/FILL, GROIN, HABITAT, HARBOR, JETTY, PIER
0036	PILING, PROTECT, RECREATION, REVETMENT, STABILIZE, BEAUTIFY, BREAKWATER, BULKHEAD, ECONOMICS, EROSION, GROIN, HARBOR, HARBOR, JETTY, LITTORAL PROCESSES
0544	PILING, PROTECT, REVETMENT, BULKHEAD, GROIN, JETTY
0188	PILING, PROTECT, SUPPORT, BULKHEAD, CR 6, GROIN, HARBOR, MOORING, PIER
0401	PILING, RAMP, REVETMENT, BULKHEAD, HARBOR, JETTY, PIER
0119	PILING, REVETMENT, BREAKWATER, BULKHEAD, GROIN, HARBOR, JETTY, LITTORAL PROCESSES, PIER
0481	PILING, REVETMENT, BULKHEAD, DREDGE/FILL, GROIN, HARBOR, PIER
0491	PILING, SEDIMENTATION, BREAKWATER, CR 1, DREDGE/FILL, FISH, HABITAT, INVERTEBRATES
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0038	PILING, SUPPORT
0217	PLANKTON, BENTHOS, BULKHEAD, CR 6, DREDGE/FILL, HABITAT
0358	PLANKTON, BENTHOS, BREAKWATER, CR 8, DREDGE/FILL, FISH, HABITAT, HARBOR, PIER
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0027	PLANKTON, PRODUCTIVITY, BULKHEAD, CR 3
0294	PLANKTON, PRODUCTIVITY, SHELLFISH, CR 3, HARBOR, MOORING
0442	PLANKTON, PRODUCTIVITY, SEDIMENTATION, SUBSTRATE, BENTHOS, DREDGE/FILL, EROSION, FISH, HABITAT
0545	PLANKTON, PRODUCTIVITY, SEDIMENTATION, BENTHOS, CR 7, DREDGE/FILL
0451	PLANKTON, SEDIMENTATION, BENTHOS, CR 8, DREDGE/FILL, EROSION, FISH, HARBOR, LITTORAL PROCESSES
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0549	PRODUCTIVITY, BRIDGE, CAUSEWAY, ECONOMICS, LAND PLANTS, LAND TRANSPORT
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0094	PRODUCTIVITY, CR 2, CUMULATIVE EFFECTS
0426	PRODUCTIVITY, CR 7, CUMULATIVE EFFECTS
0421	PRODUCTIVITY, CUMULATIVE EFFECTS, HABITAT
0376	PRODUCTIVITY, HARBOR
0046	PRODUCTIVITY, PROTECT, REVETMENT, SEDIMENTATION, STABILIZE, BENTHOS, BULKHEAD, CR 6, CR 7, DREDGE/FILL, EROSION, FISH, GROIN, HABITAT, JETTY, MOORING, PIER
0212	PRODUCTIVITY, PROTECT, SHELLFISH, SPAWNING, BIRDS, BULKHEAD, ECONOMICS, FISH, HABITAT, LAND PLANTS
0414	PRODUCTIVITY, PROTECT, RAMP, REVETMENT, BULKHEAD, CR 8, HABITAT, LAUNCH, MOORING, PIER
0469	PRODUCTIVITY, PROTECT, RAMP, RECREATION, SUPPORT, SUPPORT, BULKHEAD, CR 3, CUMULATIVE EFFECTS, HABITAT, LAUNCH, MOORING, PIER
0521	PRODUCTIVITY, PROTECT, CR 5, CR 6, EROSION
0167	PRODUCTIVITY, RECREATION, REEF, CR 5, ECONOMICS, FISH, HABITAT
0291	PRODUCTIVITY, RESEARCH NEEDS, BIRDS, CR 3, CR 4, DREDGE/FILL
0551	PRODUCTIVITY, RESEARCH NEEDS, SEDIMENTATION, SHELLFISH, SPAWNING, BENTHOS, DREDGE/FILL, FISH, GROIN, JETTY, NURSERY
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0225	PRODUCTIVITY, SEDIMENTATION, BENTHOS, CR 5, DREDGE/FILL, FISH, JETTY
0247	PRODUCTIVITY, SEDIMENTATION, BREAKWATER, BRIDGE, BULKHEAD, CAUSEWAY, DREDGE/FILL, GROIN, HABITAT, HARBOR, JETTY, PIER, PILING
0442	PRODUCTIVITY, SEDIMENTATION, SUBSTRATE, BENTHOS, DREDGE/FILL, EROSION, FISH, HABITAT, PLANKTON
0545	PRODUCTIVITY, SEDIMENTATION, BENTHOS, CR 7, DREDGE/FILL, PLANKTON
0123	PRODUCTIVITY, SHELLFISH, CR 1, HABITAT
0273	PRODUCTIVITY, SHELLFISH, SUCCESSION, BIRDS, CR 6, HABITAT, INVERTEBRATES, LAND PLANTS

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0474	PROTECT, AQUATIC PLANTS, BENTHOS, CR 5, LITTORAL PROCESSES
0540	PROTECT, BENTHOS, CR 5, DREDGE/FILL, EROSION, GROIN, LITTORAL PROCESSES
0182	PROTECT, BREAKWATER
0286	PROTECT, BREAKWATER
0484	PROTECT, BREAKWATER
0485	PROTECT, BREAKWATER
0486	PROTECT, BREAKWATER
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0518	PROTECT, BREAKWATER
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0056	PROTECT, BREAKWATER, CR 1
0064	PROTECT, BREAKWATER, EROSION
0156	PROTECT, BREAKWATER, EROSION, HARBOR
0162	PROTECT, BREAKWATER, CR 1, ECONOMICS, FISH, HARBOR, LEGAL, MIGRATION
0169	PROTECT, BREAKWATER, ECONOMICS, HABITAT, HARBOR
0170	PROTECT, BREAKWATER, CR 2, ECONOMICS, HARBOR, LITTORAL PROCESSES
0177	PROTECT, BREAKWATER, BULKHEAD, GROIN
0228	PROTECT, BREAKWATER, BULKHEAD, CR 3, CR 4, CR 5, DREDGE/FILL, GROIN, JETTY
0236	PROTECT, BREAKWATER, CR 8, LITTORAL PROCESSES
0272	PROTECT, BREAKWATER, BULKHEAD
0335	PROTECT, BREAKWATER, CR 6, EROSION
0337	PROTECT, BREAKWATER, CR 6, GROIN, LITTORAL PROCESSES
0392	PROTECT, BREAKWATER, BULKHEAD, DREDGE/FILL, GROIN, HARBOR, JETTY, PIER
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0498	PROTECT, BREAKWATER, HARBOR
0499	PROTECT, BREAKWATER, HARBOR
0039	PROTECT, BULKHEAD
0025	PROTECT, BULKHEAD, CR 6, EROSION
0048	PROTECT, BULKHEAD, CR 1, EROSION, GROIN, LITTORAL PROCESSES
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0345	PROTECT, BULKHEAD, CR 6, EROSION, PIER
0346	PROTECT, BULKHEAD, CR 6, EROSION
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0055	PROTECT, CR 1, DREDGE/FILL, EROSION, HARBOR, JETTY
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0315	PROTECT, CR 3, CR 4, CR 5, LAND PLANTS
0494	PROTECT, CR 3, FISH, HABITAT
0092	PROTECT, CR 5, CR 6, EROSION, LAND PLANTS
0521	PROTECT, CR 5, CR 6, EROSION, PRODUCTIVITY
0289	PROTECT, CR 5, EROSION, LAND PLANTS
0163	PROTECT, CR 6, GROIN
0179	PROTECT, CR 8, EROSION
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0476	PROTECT, CR 8, GROIN, LITTORAL PROCESSES
0288	PROTECT, ECONOMICS, EROSION
0091	PROTECT, GROIN
0013	PROTECT, GROIN, LITTORAL PROCESSES
0469	PROTECT, RAMP, RECREATION, SUPPORT, SUPPORT, BULKHEAD, CR 3, CUMULATIVE EFFECTS, HABITAT, LAUNCH, MOORING, PIER, PRODUCTIVITY
0414	PROTECT, RAMP, REVETMENT, BULKHEAD, CR 8, HABITAT, LAUNCH, MOORING, PIER, PRODUCTIVITY
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0036	PROTECT, RECREATION, REVETMENT, STABILIZE, BEAUTIFY, BREAKWATER, BULKHEAD, ECONOMICS, EROSION, GROIN, HARBOR, HARBOR, JETTY, LITTORAL PROCESSES, PILING
0184	PROTECT, RECREATION, STABILIZE, CR 5, EROSION, JETTY, LITTORAL PROCESSES
0243	PROTECT, RECREATION, REVETMENT, STABILIZE, BREAKWATER, BULKHEAD, DREDGE/FILL, GROIN, JETTY
0411	PROTECT, RECREATION, BREAKWATER, CR 2, DREDGE/FILL, HABITAT, HARBOR
0462	PROTECT, RECREATION, CR 2, DREDGE/FILL, GROIN, HABITAT
0536	PROTECT, RECREATION, CR 2, EROSION, GROIN
0533	PROTECT, REEF, REVETMENT, CR 3, DREDGE/FILL, GROIN, JETTY
0237	PROTECT, RESEARCH NEEDS, CR 2, GROIN, LITTORAL PROCESSES
0059	PROTECT, REVETMENT
0130	PROTECT, REVETMENT
0279	PROTECT, REVETMENT
0001	PROTECT, REVETMENT, BREAKWATER, BULKHEAD, EROSION, GROIN
0001	PROTECT, REVETMENT, BREAKWATER, BULKHEAD, EROSION, GROIN
0009	PROTECT, REVETMENT, BREAKWATER, EROSION, GROIN
0017	PROTECT, REVETMENT, BREAKWATER, BULKHEAD, CR 3, CR 4, CR 5, ECONOMICS, GROIN
0037	PROTECT, REVETMENT, CR 6, EROSION
0043	PROTECT, REVETMENT, STABILIZE, BULKHEAD, CR 8, EROSION, GROIN, JETTY
0046	PROTECT, REVETMENT, SEDIMENTATION, STABILIZE, BENTHOS, BULKHEAD, CR 6, CR 7, DREDGE/FILL, EROSION, FISH, GROIN, HABITAT, JETTY, MOORING, PIER, PRODUCTIVITY
0053	PROTECT, REVETMENT, CR 3
0067	PROTECT, REVETMENT, BREAKWATER, BULKHEAD, CR 8, EROSION, GROIN
0079	PROTECT, REVETMENT, SEDIMENTATION, STABILIZE, TRAINING, BREAKWATER, BULKHEAD, EROSION, GROIN, HARBOR, LITTORAL PROCESSES
0122	PROTECT, REVETMENT, BREAKWATER, BULKHEAD, CR 8, EROSION, GROIN
0125	PROTECT, REVETMENT, BULKHEAD
0129	PROTECT, REVETMENT, BULKHEAD, CR 8, EROSION, GROIN
0134	PROTECT, REVETMENT, BULKHEAD, CR 5, CR 6, EROSION, GROIN
0138	PROTECT, REVETMENT, STABILIZE, TRAINING, BULKHEAD, CR 6, CR 7, GROIN, JETTY, LITTORAL PROCESSES
0139	PROTECT, REVETMENT, STABILIZE, BREAKWATER, BULKHEAD, EROSION, GROIN, LITTORAL PROCESSES
0144	PROTECT, REVETMENT, CR 6
0166	PROTECT, REVETMENT, SEDIMENTATION, STABILIZE, BULKHEAD, JETTY
0176	PROTECT, REVETMENT, STABILIZE, SUPPORT, BRIDGE, PIER
0208	PROTECT, REVETMENT, SEDIMENTATION, BENTHOS, BREAKWATER, DREDGE/FILL, EROSION, GROIN, JETTY
0283	PROTECT, REVETMENT, STABILIZE, BULKHEAD, CR 6, ECONOMICS, EROSION
0308	PROTECT, REVETMENT, REVETMENT, BULKHEAD, EROSION, GROIN, LITTORAL PROCESSES
0320	PROTECT, REVETMENT, BREAKWATER, BULKHEAD, CR 3, DREDGE/FILL, EROSION, GROIN, JETTY, LITTORAL PROCESSES

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0321	PROTECT, REVETMENT, BREAKWATER, BULKHEAD, CR 8, DREDGE/FILL, EROSION, GROIN, LITTORAL PROCESSES
0339	PROTECT, REVETMENT, CR 2, EROSION, GROIN
0342	PROTECT, REVETMENT, STABILIZE, CR 8, EROSION, LAND PLANTS
0347	PROTECT, REVETMENT, CR 6, EROSION, MOORING, PIER
0348	PROTECT, REVETMENT, CR 6, EROSION, MOORING, PIER
0361	PROTECT, REVETMENT, STABILIZE, BREAKWATER, BULKHEAD, CR 8, EROSION, GROIN, HARBOR, JETTY, LITTORAL PROCESSES, LITTORAL PROCESSES
0367	PROTECT, REVETMENT, CR 8
0394	PROTECT, REVETMENT, BULKHEAD, CR 1, CUMULATIVE EFFECTS
0408	PROTECT, REVETMENT, SUBSTRATE, SUCCESSION, CAUSEWAY, CR 2, HABITAT
0454	PROTECT, REVETMENT, BULKHEAD
0471	PROTECT, REVETMENT, ECONOMICS, EROSION
0478	PROTECT, REVETMENT, BREAKWATER, CR 2, DREDGE/FILL, HABITAT, HARBOR
0479	PROTECT, REVETMENT, STABILIZE, TRAINING, BREAKWATER, BULKHEAD, CR 3, CR 4, CR 5, GROIN, JETTY, PIER
0489	PROTECT, REVETMENT, BULKHEAD, CR 8, EROSION, GROIN
0493	PROTECT, REVETMENT, BREAKWATER, BULKHEAD, CR 8, GROIN
0513	PROTECT, REVETMENT, BULKHEAD, CR 4, CR 5, CR 8, DREDGE/FILL, GROIN, JETTY
0522	PROTECT, REVETMENT, BREAKWATER, CR 8, ECONOMICS, GROIN
0534	PROTECT, REVETMENT, BULKHEAD, CR 7
0538	PROTECT, REVETMENT, BREAKWATER, BULKHEAD, CR 8, EROSION, GROIN
0544	PROTECT, REVETMENT, BULKHEAD, GROIN, JETTY, PILING
0029	PROTECT, SHELLFISH, BREAKWATER, BULKHEAD, CR 1, FISH, HARBOR
0212	PROTECT, SHELLFISH, SPAWNING, BIRDS, BULKHEAD, ECONOMICS, FISH, HABITAT, LAND PLANTS, PRODUCTIVITY
0298	PROTECT, SPAWNING, SUBSTRATE, AQUATIC PLANTS, BREAKWATER, BULKHEAD, CR 1, FISH, HABITAT, MIGRATION
0062	PROTECT, STABILIZE, CR 8, GROIN, LITTORAL PROCESSES
0114	PROTECT, STABILIZE, CR 6
0131	PROTECT, STABILIZE, CR 5, EROSION, GROIN
0165	PROTECT, STABILIZE, EROSION, GROIN, JETTY
0173	PROTECT, STABILIZE, TRAINING, BREAKWATER, BULKHEAD, CR 3, CR 4, CR 5, EROSION, GROIN, JETTY, LITTORAL PROCESSES
0186	PROTECT, STABILIZE, CR 1, EROSION, JETTY, LITTORAL PROCESSES
0221	PROTECT, STABILIZE, CR 8, EROSION, LAND PLANTS
0224	PROTECT, STABILIZE, BULKHEAD, CR 5, MOORING, PIER
0293	PROTECT, STABILIZE, CR 8, EROSION, GROIN
0395	PROTECT, STABILIZE, BREAKWATER, GROIN, HARBOR, JETTY
0436	PROTECT, STABILIZE, LITTORAL PROCESSES
0456	PROTECT, STABILIZE, CR 8
0187	PROTECT, SUBSTRATE, CR 7, DREDGE/FILL, LAND PLANTS
0188	PROTECT, SUPPORT, BULKHEAD, CR 6, GROIN, HARBOR, MOORING, PIER, PILING
0002	PROTECT, TRAINING, BREAKWATER, JETTY
0075	PROTECT, TRAINING, EROSION, GROIN, LITTORAL PROCESSES
0469	RAMP, RECREATION, SUPPORT, SUPPORT, BULKHEAD, CR 3, CUMULATIVE EFFECTS, HABITAT, LAUNCH, MOORING, PIER, PRODUCTIVITY, PROTECT
0444	RAMP, REVETMENT, BREAKWATER, BRIDGE, BULKHEAD, CR 4, GROIN, JETTY
0401	RAMP, REVETMENT, BULKHEAD, HARBOR, JETTY, PIER, PILING
0414	RAMP, REVETMENT, BULKHEAD, CR 8, HABITAT, LAUNCH, MOORING, PIER, PRODUCTIVITY, PROTECT

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0306	RECREATION, AQUATIC PLANTS, BREAKWATER, CR 1, HARBOR
0353	RECREATION, BENTHOS, BREAKWATER, CR 8, DREDGE/FILL, HABITAT, HARBOR
0411	RECREATION, BREAKWATER, CR 2, DREDGE/FILL, HABITAT, HARBOR, PROTECT
0462	RECREATION, CR 2, DREDGE/FILL, GROIN, HABITAT, PROTECT
0536	RECREATION, CR 2, EROSION, GROIN, PROTECT
0413	RECREATION, CR 2, GROIN, HABITAT, LAND PLANTS
0003	RECREATION, CR 5, CR 6, EROSION, PROTECT
0393	RECREATION, CR 6, CUMULATIVE EFFECTS, HABITAT, HARBOR
0167	RECREATION, REEF, CR 5, ECONOMICS, FISH, HABITAT, PRODUCTIVITY
0267	RECREATION, REEF, FISH, HABITAT
0171	RECREATION, REEF, RESEARCH NEEDS, CR 1, FISH, HABITAT
0036	RECREATION, REVETMENT, STABILIZE, BEAUTIFY, BREAKWATER, BULKHEAD, ECONOMICS, EROSION, GROIN, HARBOR, HARBOR, JETTY, LITTORAL PROCESSES, PILING, PROTECT
0243	RECREATION, REVETMENT, STABILIZE, BREAKWATER, BULKHEAD, DREDGE/FILL, GROIN, JETTY, PROTECT
0180	RECREATION, SEDIMENTATION, BENTHOS, BREAKWATER, CR 1, HABITAT, HARBOR
0184	RECREATION, STABILIZE, CR 5, EROSION, JETTY, LITTORAL PROCESSES, PROTECT
0469	RECREATION, SUPPORT, SUPPORT, BULKHEAD, CR 3, CUMULATIVE EFFECTS, HABITAT, LAUNCH, MOORING, PIER, PRODUCTIVITY, PROTECT, RAMP
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0167	REEF, CR 5, ECONOMICS, FISH, HABITAT, PRODUCTIVITY, RECREATION
0106	REEF, FISH, HABITAT
0140	REEF, FISH, HABITAT
0267	REEF, FISH, HABITAT, RECREATION
0171	REEF, RESEARCH NEEDS, CR 1, FISH, HABITAT, RECREATION
0533	REEF, REVETMENT, CR 3, DREDGE/FILL, GROIN, JETTY, PROTECT
0194	REEF, SUBSTRATE, CR 7, HABITAT
0070	REEF, SUBSTRATE, SUCCESSION, BRIDGE, BULKHEAD, BUOY
0470	RESEARCH NEEDS
0465	RESEARCH NEEDS, BENTHOS, CR 6, DREDGE/FILL
0291	RESEARCH NEEDS, BIRDS, CR 3, CR 4, DREDGE/FILL, PRODUCTIVITY
0389	RESEARCH NEEDS, BREAKWATER, CAUSEWAY, DREDGE/FILL, JETTY
0171	RESEARCH NEEDS, CR 1, FISH, HABITAT, RECREATION, REEF
0237	RESEARCH NEEDS, CR 2, GROIN, LITTORAL PROCESSES, PROTECT
0332	RESEARCH NEEDS, CR 7, DREDGE/FILL
0005	RESEARCH NEEDS, SEDIMENTATION, GROIN, JETTY
0551	RESEARCH NEEDS, SEDIMENTATION, SHELLFISH, SPAWNING, BENTHOS, DREDGE/FILL, FISH, GROIN, JETTY, NURSERY, PRODUCTIVITY
0211	RESEARCH NEEDS, TURTLES, BEAUTIFY, CR 5, DREDGE/FILL, LITTORAL PROCESSES, NESTING
0371	REVETMENT, AQUATIC PLANTS, BRIDGE, CAUSEWAY, CR 4, CUMULATIVE EFFECTS, FISH, LAND PLANTS
0359	REVETMENT, BENTHOS, BREAKWATER, CR 8, DREDGE/FILL, FISH, HABITAT, HARBOR
0001	REVETMENT, BREAKWATER, BULKHEAD, EROSION, GROIN, PROTECT
0001	REVETMENT, BREAKWATER, BULKHEAD, EROSION, GROIN, PROTECT
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0017	REVETMENT, BREAKWATER, BULKHEAD, CR 3, CR 4, CR 5, ECONOMICS, GROIN, PROTECT
0067	REVETMENT, BREAKWATER, BULKHEAD, CR 8, EROSION, GROIN, PROTECT
0097	REVETMENT, BREAKWATER, BULKHEAD, GROIN, JETTY
0116	REVETMENT, BREAKWATER, BULKHEAD, CR 4, JETTY
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0321	REVETMENT, BREAKWATER, BULKHEAD, CR 8, DREDGE/FILL, EROSION, GROIN, LITTORAL PROCESSES, PROTECT
0424	REVETMENT, BREAKWATER, BULKHEAD, JETTY, LITTORAL PROCESSES
0444	REVETMENT, BREAKWATER, BRIDGE, BULKHEAD, CR 4, GROIN, JETTY, RAMP
0478	REVETMENT, BREAKWATER, CR 2, DREDGE/FILL, HABITAT, HARBOR, PROTECT
0487	REVETMENT, BREAKWATER, BULKHEAD, CR 8, ECONOMICS, GROIN
0493	REVETMENT, BREAKWATER, BULKHEAD, CR 8, GROIN, PROTECT
0522	REVETMENT, BREAKWATER, CR 8, ECONOMICS, GROIN, PROTECT
0538	REVETMENT, BREAKWATER, BULKHEAD, CR 8, EROSION, GROIN, PROTECT
0181	REVETMENT, BRIDGE, BULKHEAD, CAUSEWAY, DREDGE/FILL, GROIN, HARBOR, JETTY, PIER
0081	REVETMENT, BULKHEAD, EROSION, GROIN
0125	REVETMENT, BULKHEAD, PROTECT
0129	REVETMENT, BULKHEAD, CR 8, EROSION, GROIN, PROTECT
0134	REVETMENT, BULKHEAD, CR 5, CR 6, EROSION, GROIN, PROTECT
0271	REVETMENT, BULKHEAD, CR 1, FISH, HARBOR
0308	REVETMENT, BULKHEAD, EROSION, GROIN, LITTORAL PROCESSES, PROTECT, REVETMENT
0362	REVETMENT, BULKHEAD, CR 1
0363	REVETMENT, BULKHEAD, CR 2, EROSION, LITTORAL PROCESSES
0368	REVETMENT, BULKHEAD, CR 1, CUMULATIVE EFFECTS
0394	REVETMENT, BULKHEAD, CR 1, CUMULATIVE EFFECTS, PROTECT
0401	REVETMENT, BULKHEAD, HARBOR, JETTY, PIER, PILING, RAMP
0414	REVETMENT, BULKHEAD, CR 8, HABITAT, LAUNCH, MOORING, PIER, PRODUCTIVITY, PROTECT, RAMP
0448	REVETMENT, BULKHEAD, CR 8, ECONOMICS, EROSION, GROIN
0454	REVETMENT, BULKHEAD, PROTECT
0481	REVETMENT, BULKHEAD, DREDGE/FILL, GROIN, HARBOR, PIER, PILING
0489	REVETMENT, BULKHEAD, CR 8, EROSION, GROIN, PROTECT
0509	REVETMENT, BULKHEAD, CR 7, EROSION, GROIN, JETTY
0513	REVETMENT, BULKHEAD, CR 4, CR 5, CR 8, DREDGE/FILL, GROIN, JETTY, PROTECT
0528	REVETMENT, BULKHEAD, CR 3
0534	REVETMENT, BULKHEAD, CR 7, PROTECT
0544	REVETMENT, BULKHEAD, GROIN, JETTY, PILING, PROTECT
0339	REVETMENT, CR 2, EROSION, GROIN, PROTECT
0373	REVETMENT, CR 3, CR 4, CR 5, GROIN, JETTY
0533	REVETMENT, CR 3, DREDGE/FILL, GROIN, JETTY, PROTECT, REEF
0053	REVETMENT, CR 3, PROTECT
0037	REVETMENT, CR 6, EROSION, PROTECT
0105	REVETMENT, CR 6, EROSION, JETTY, LITTORAL PROCESSES
0347	REVETMENT, CR 6, EROSION, MOORING, PIER, PROTECT
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0471	REVETMENT, ECONOMICS, EROSION, PROTECT
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0079	REVETMENT, SEDIMENTATION, STABILIZE, TRAINING, BREAKWATER, BULKHEAD, EROSION, GROIN, HARBOR, LITTORAL PROCESSES, PROTECT
0085	REVETMENT, SEDIMENTATION, BENTHOS, BULKHEAD, GROIN, JETTY, PIER
0166	REVETMENT, SEDIMENTATION, STABILIZE, BULKHEAD, JETTY, PROTECT
0175	REVETMENT, SEDIMENTATION, SUPPORT, CAUSEWAY, CR 2
0208	REVETMENT, SEDIMENTATION, BENTHOS, BREAKWATER, DREDGE/FILL, EROSION, GROIN, JETTY, PROTECT
0370	REVETMENT, SHELLFISH, CR 3, CR 4, CR 5, JETTY, NURSERY
0036	REVETMENT, STABILIZE, BEAUTIFY, BREAKWATER, BULKHEAD, ECONOMICS, EROSION, GROIN, HARBOR, HARBOR, JETTY, LITTORAL PROCESSES, PILING, PROTECT, RECREATION
0043	REVETMENT, STABILIZE, BULKHEAD, CR 8, EROSION, GROIN, JETTY, PROTECT
0088	REVETMENT, STABILIZE, CR 7, EROSION
0138	REVETMENT, STABILIZE, TRAINING, BULKHEAD, CR 6, CR 7, GROIN, JETTY, LITTORAL PROCESSES, PROTECT
0139	REVETMENT, STABILIZE, BREAKWATER, BULKHEAD, EROSION, GROIN, LITTORAL PROCESSES, PROTECT
0176	REVETMENT, STABILIZE, SUPPORT, BRIDGE, PIER, PROTECT
0243	REVETMENT, STABILIZE, BREAKWATER, BULKHEAD, DREDGE/FILL, GROIN, JETTY, PROTECT, RECREATION
0283	REVETMENT, STABILIZE, BULKHEAD, CR 6, ECONOMICS, EROSION, PROTECT
0342	REVETMENT, STABILIZE, CR 8, EROSION, LAND PLANTS, PROTECT
0361	REVETMENT, STABILIZE, BREAKWATER, BULKHEAD, CR 8, EROSION, GROIN, HARBOR, JETTY, LITTORAL PROCESSES, LITTORAL PROCESSES, PROTECT
0479	REVETMENT, STABILIZE, TRAINING, BREAKWATER, BULKHEAD, CR 3, CR 4, CR 5, GROIN, JETTY, PIER, PROTECT
0408	REVETMENT, SUBSTRATE, SUCCESSION, CAUSEWAY, CR 2, HABITAT, PROTECT
0109	SALINITY, FISH, INVERTEBRATES, NURSERY
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0085	SEDIMENTATION, BENTHOS, BULKHEAD, GROIN, JETTY, PIER, REVETMENT
0087	SEDIMENTATION, BENTHOS, CR 3, CR 4, CUMULATIVE EFFECTS, HABITAT
0180	SEDIMENTATION, BENTHOS, BREAKWATER, CR 1, HABITAT, HARBOR, RECREATION
0208	SEDIMENTATION, BENTHOS, BREAKWATER, DREDGE/FILL, EROSION, GROIN, JETTY, PROTECT, REVETMENT
0225	SEDIMENTATION, BENTHOS, CR 5, DREDGE/FILL, FISH, JETTY, PRODUCTIVITY
0284	SEDIMENTATION, BENTHOS, CR 1, DREDGE/FILL, INVERTEBRATES
0352	SEDIMENTATION, BENTHOS, BREAKWATER, CR 8, DREDGE/FILL, FISH, HABITAT
0354	SEDIMENTATION, BENTHOS, BREAKWATER, CR 8, DREDGE/FILL, HARBOR
0451	SEDIMENTATION, BENTHOS, CR 8, DREDGE/FILL, EROSION, FISH, HARBOR, LITTORAL PROCESSES, PLANKTON
0452	SEDIMENTATION, BENTHOS, CR 8, DREDGE/FILL, FISH, HARBOR
0459	SEDIMENTATION, BENTHOS, BREAKWATER, CR 8, DREDGE/FILL, FISH, HABITAT, HARBOR
0490	SEDIMENTATION, BENTHOS, BULKHEAD, CR 6, DREDGE/FILL
0545	SEDIMENTATION, BENTHOS, CR 7, DREDGE/FILL, PLANKTON, PRODUCTIVITY
0547	SEDIMENTATION, BENTHOS, CR 8, DREDGE/FILL, FISH, HARBOR
0550	SEDIMENTATION, BENTHOS, CR 1, DREDGE/FILL
0301	SEDIMENTATION, BIRDS, DREDGE/FILL, HABITAT, HARBOR
0126	SEDIMENTATION, BREAKWATER, BRIDGE, BULKHEAD, CAUSEWAY, DREDGE/FILL, EROSION, GROIN, HABITAT, HARBOR, PIER
0247	SEDIMENTATION, BREAKWATER, BRIDGE, BULKHEAD, CAUSEWAY, DREDGE/FILL, GROIN, HABITAT, HARBOR, JETTY, PIER, PILING, PRODUCTIVITY
0491	SEDIMENTATION, BREAKWATER, CR 1, DREDGE/FILL, FISH, HABITAT, INVERTEBRATES, PILING
0016	SEDIMENTATION, BULKHEAD, CR 3, DREDGE/FILL, PRODUCTIVITY

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0319	SEDIMENTATION, BULKHEAD, CR 6, CUMULATIVE EFFECTS, DREDGE/FILL, HABITAT, PIER
0292	SEDIMENTATION, CAUSEWAY, CR 6, CUMULATIVE EFFECTS
0030	SEDIMENTATION, CR 1, EROSION, JETTY
0537	SEDIMENTATION, CR 2, HARBOR, MOORING
0099	SEDIMENTATION, CR 6, CUMULATIVE EFFECTS, DREDGE/FILL, HARBOR, LEGAL, MOORING
0124	SEDIMENTATION, CR 8, EROSION, LITTORAL PROCESSES
0189	SEDIMENTATION, DREDGE/FILL
0349	SEDIMENTATION, DREDGE/FILL
0141	SEDIMENTATION, EROSION
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0328	SEDIMENTATION, SHELLFISH, CR 3, DREDGE/FILL
0457	SEDIMENTATION, SHELLFISH, BENTHOS, BREAKWATER, FISH, HABITAT, HARBOR
0496	SEDIMENTATION, SHELLFISH, CR 3, DREDGE/FILL
0529	SEDIMENTATION, SHELLFISH, SPAWNING, AQUATIC PLANTS, BENTHOS, CR 3, DREDGE/FILL, FISH, HABITAT
0551	SEDIMENTATION, SHELLFISH, SPAWNING, BENTHOS, DREDGE/FILL, FISH, GROIN, JETTY, NURSERY, PRODUCTIVITY, RESEARCH NEEDS
0137	SEDIMENTATION, SPAWNING, SUCCESSION, BENTHOS, CR 1, DREDGE/FILL
0028	SEDIMENTATION, STABILIZE, EROSION, GROIN, LITTORAL PROCESSES
0046	SEDIMENTATION, STABILIZE, BENTHOS, BULKHEAD, CR 6, CR 7, DREDGE/FILL, EROSION, FISH, GROIN, HABITAT, JETTY, MOORING, PIER, PRODUCTIVITY, PROTECT, REVETMENT
0079	SEDIMENTATION, STABILIZE, TRAINING, BREAKWATER, BULKHEAD, EROSION, GROIN, HARBOR, LITTORAL PROCESSES, PROTECT, REVETMENT
0166	SEDIMENTATION, STABILIZE, BULKHEAD, JETTY, PROTECT, REVETMENT
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0442	SEDIMENTATION, SUBSTRATE, BENTHOS, DREDGE/FILL, EROSION, FISH, HABITAT, PLANKTON, PRODUCTIVITY
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0364	SHELLFISH, AQUATIC PLANTS, DREDGE/FILL, FISH, GROIN, INVERTEBRATES, JETTY, NURSERY
0374	SHELLFISH, AQUATIC PLANTS, CR 4, INVERTEBRATES, LAND PLANTS
0399	SHELLFISH, BENTHOS, CR 5, DREDGE/FILL, FISH, HABITAT, HARBOR, INVERTEBRATES, JETTY
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0415	SHELLFISH, BIRDS, BRIDGE, CR 7, HABITAT, LAND TRANSPORT
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0423	SHELLFISH, BREAKWATER, BULKHEAD, CR 1, FISH, HARBOR
0268	SHELLFISH, BULKHEAD, CR 1
0123	SHELLFISH, CR 1, HABITAT, PRODUCTIVITY
0370	SHELLFISH, CR 3, CR 4, CR 5, JETTY, NURSERY, REVETMENT
0328	SHELLFISH, CR 3, DREDGE/FILL, SEDIMENTATION
0496	SHELLFISH, CR 3, DREDGE/FILL, SEDIMENTATION
0313	SHELLFISH, CR 3, FISH
0294	SHELLFISH, CR 3, HARBOR, MOORING, PLANKTON, PRODUCTIVITY
0227	SHELLFISH, CR 5, FISH
0212	SHELLFISH, SPAWNING, BIRDS, BULKHEAD, ECONOMICS, FISH, HABITAT, LAND PLANTS, PRODUCTIVITY, PROTECT
0529	SHELLFISH, SPAWNING, AQUATIC PLANTS, BENTHOS, CR 3, DREDGE/FILL, FISH, HABITAT, SEDIMENTATION
0551	SHELLFISH, SPAWNING, BENTHOS, DREDGE/FILL, FISH, GROIN, JETTY, NURSERY, PRODUCTIVITY, RESEARCH NEEDS, SEDIMENTATION
0290	SHELLFISH, STABILIZE, SUCCESSION, AQUATIC PLANTS, CR 2, HABITAT, HARBOR, JETTY
0273	SHELLFISH, SUCCESSION, BIRDS, CR 6, HABITAT, INVERTEBRATES, LAND PLANTS, PRODUCTIVITY
0325	SHELLFISH, SUCCESSION, AQUATIC PLANTS, CR 2, HABITAT, JETTY
0529	SPAWNING, AQUATIC PLANTS, BENTHOS, CR 3, DREDGE/FILL, FISH, HABITAT, SEDIMENTATION, SHELLFISH

KEYWORD INDEX

REF. NO.	KEYWORD(S)
0551	SPAWNING, BENTHOS, DREDGE/FILL, FISH, GROIN, JETTY, NURSERY, PRODUCTIVITY, RESEARCH NEEDS, SEDIMENTATION, SHELLFISH
0212	SPAWNING, BIRDS, BULKHEAD, ECONOMICS, FISH, HABITAT, LAND PLANTS, PRODUCTIVITY, PROTECT, SHELLFISH
0298	SPAWNING, SUBSTRATE, AQUATIC PLANTS, BREAKWATER, BULKHEAD, CR 1, FISH, HABITAT, MIGRATION, PROTECT
0137	SPAWNING, SUCCESSION, BENTHOS, CR 1, DREDGE/FILL, SEDIMENTATION
0036	STABILIZE, BEAUTIFY, BREAKWATER, BULKHEAD, ECONOMICS, EROSION, GROIN, HARBOR, HARBOR, JETTY, LITTORAL PROCESSES, PILING, PROTECT, RECREATION, REVETMENT
0046	STABILIZE, BENTHOS, BULKHEAD, CR 6, CR 7, DREDGE/FILL, EROSION, FISH, GROIN, HABITAT, JETTY, MOORING, PIER, PRODUCTIVITY, PROTECT, REVETMENT, SEDIMENTATION
0139	STABILIZE, BREAKWATER, BULKHEAD, EROSION, GROIN, LITTORAL PROCESSES, PROTECT, REVETMENT
0243	STABILIZE, BREAKWATER, BULKHEAD, DREDGE/FILL, GROIN, JETTY, PROTECT, RECREATION, REVETMENT
0361	STABILIZE, BREAKWATER, BULKHEAD, CR 8, EROSION, GROIN, HARBOR, JETTY, LITTORAL PROCESSES, LITTORAL PROCESSES, PROTECT, REVETMENT
0395	STABILIZE, BREAKWATER, GROIN, HARBOR, JETTY, PROTECT
0043	STABILIZE, BULKHEAD, CR 8, EROSION, GROIN, JETTY, PROTECT, REVETMENT
0113	STABILIZE, BULKHEAD, CR 8, EROSION, GROIN
0166	STABILIZE, BULKHEAD, JETTY, PROTECT, REVETMENT, SEDIMENTATION
0224	STABILIZE, BULKHEAD, CR 5, MOORING, PIER, PROTECT
0283	STABILIZE, BULKHEAD, CR 6, ECONOMICS, EROSION, PROTECT, REVETMENT
0060	STABILIZE, CR 1, CR 5, JETTY
0031	STABILIZE, CR 1, DREDGE/FILL, EROSION, JETTY, PIER
0033	STABILIZE, CR 1, EROSION, JETTY, LITTORAL PROCESSES
0186	STABILIZE, CR 1, EROSION, JETTY, LITTORAL PROCESSES, PROTECT
0310	STABILIZE, CR 1, EROSION, JETTY, LITTORAL PROCESSES
0054	STABILIZE, CR 1, JETTY, LITTORAL PROCESSES
0542	STABILIZE, CR 3, LAND PLANTS
0406	STABILIZE, CR 4, CUMULATIVE EFFECTS, LAND PLANTS, SEDIMENTATION
0095	STABILIZE, CR 4, EROSION, JETTY
0110	STABILIZE, CR 5, CR 6, DREDGE/FILL, LAND PLANTS
0145	STABILIZE, CR 5, ECONOMICS, GROIN
0131	STABILIZE, CR 5, EROSION, GROIN, PROTECT
0184	STABILIZE, CR 5, EROSION, JETTY, LITTORAL PROCESSES, PROTECT, RECREATION
0114	STABILIZE, CR 6, PROTECT
0101	STABILIZE, CR 7, CUMULATIVE EFFECTS, DREDGE/FILL, ECONOMICS, GROIN
0071	STABILIZE, CR 7, EROSION, GROIN, LITTORAL PROCESSES
0088	STABILIZE, CR 7, EROSION, REVETMENT
0221	STABILIZE, CR 8, EROSION, LAND PLANTS, PROTECT
0293	STABILIZE, CR 8, EROSION, GROIN, PROTECT
0342	STABILIZE, CR 8, EROSION, LAND PLANTS, PROTECT, REVETMENT
0062	STABILIZE, CR 8, GROIN, LITTORAL PROCESSES, PROTECT
0456	STABILIZE, CR 8, PROTECT
0028	STABILIZE, EROSION, GROIN, LITTORAL PROCESSES, SEDIMENTATION
0165	STABILIZE, EROSION, GROIN, JETTY, PROTECT
0076	STABILIZE, GROIN, LAND PLANTS
0063	STABILIZE, GROIN, LITTORAL PROCESSES
0120	STABILIZE, GROIN, LITTORAL PROCESSES
0436	STABILIZE, LITTORAL PROCESSES, PROTECT
0290	STABILIZE, SUCCESSION, AQUATIC PLANTS, CR 2, HABITAT, HARBOR, JETTY, SHELLFISH

REF. NO.	KEYWORD(S)
0511	STABILIZE, SUCCESSION, AQUATIC PLANTS
0176	STABILIZE, SUPPORT, BRIDGE, PIER, PROTECT, REVETMENT
0050	STABILIZE, TRAINING, BREAKWATER, CR 1, DREDGE/FILL, FISH, INVERTEBRATES, JETTY, LITTORAL PROCESSES
0079	STABILIZE, TRAINING, BREAKWATER, BULKHEAD, EROSION, GROIN, HARBOR, LITTORAL PROCESSES, PROTECT, REVETMENT, SEDIMENTATION
0138	STABILIZE, TRAINING, BULKHEAD, CR 6, CR 7, GROIN, JETTY, LITTORAL PROCESSES, PROTECT, REVETMENT
0173	STABILIZE, TRAINING, BREAKWATER, BULKHEAD, CR 3, CR 4, CR 5, EROSION, GROIN, JETTY, LITTORAL PROCESSES, PROTECT
0479	STABILIZE, TRAINING, BREAKWATER, BULKHEAD, CR 3, CR 4, CR 5, GROIN, JETTY, PIER, PROTECT, REVETMENT
0298	SUBSTRATE, AQUATIC PLANTS, BREAKWATER, BULKHEAD, CR 1, FISH, HABITAT, MIGRATION, PROTECT, SPAWNING
0442	SUBSTRATE, BENTHOS, DREDGE/FILL, EROSION, FISH, HABITAT, PLANKTON, PRODUCTIVITY, SEDIMENTATION
0187	SUBSTRATE, CR 7, DREDGE/FILL, LAND PLANTS, PROTECT
0128	SUBSTRATE, CR 7, FISH
0194	SUBSTRATE, CR 7, HABITAT, REEF
0070	SUBSTRATE, SUCCESSION, BRIDGE, BULKHEAD, BUOY, REEF
0280	SUBSTRATE, SUCCESSION, BENTHOS, CR 1, HARBOR
0408	SUBSTRATE, SUCCESSION, CAUSEWAY, CR 2, HABITAT, PROTECT, REVETMENT
0290	SUCCESSION, AQUATIC PLANTS, CR 2, HABITAT, HARBOR, JETTY, SHELLFISH, STABILIZE
0325	SUCCESSION, AQUATIC PLANTS, CR 2, HABITAT, JETTY, SHELLFISH
0511	SUCCESSION, AQUATIC PLANTS, STABILIZE
0012	SUCCESSION, BENTHOS, CR 2, HARBOR
0137	SUCCESSION, BENTHOS, CR 1, DREDGE/FILL, SEDIMENTATION, SPAWNING
0280	SUCCESSION, BENTHOS, CR 1, HARBOR, SUBSTRATE
0273	SUCCESSION, BIRDS, CR 6, HABITAT, INVERTEBRATES, LAND PLANTS, PRODUCTIVITY, SHELLFISH
0070	SUCCESSION, BRIDGE, BULKHEAD, BUOY, REEF, SUBSTRATE
0408	SUCCESSION, CAUSEWAY, CR 2, HABITAT, PROTECT, REVETMENT, SUBSTRATE
0083	SUCCESSION, CR 2, HARBOR
0510	SUCCESSION, CR 3, FISH, JETTY
0135	SUCCESSION, CR 5, DREDGE/FILL, EROSION
0553	SUPPORT, BRIDGE, BULKHEAD, CR 1, DREDGE/FILL, GROIN, HARBOR, RAMP
0176	SUPPORT, BRIDGE, PIER, PROTECT, REVETMENT, STABILIZE
0188	SUPPORT, BULKHEAD, CR 6, GROIN, HARBOR, MOORING, PIER, PILING, PROTECT
0469	SUPPORT, BULKHEAD, CR 3, CUMULATIVE EFFECTS, HABITAT, LAUNCH, MOORING, PIER, PRODUCTIVITY, PROTECT, RAMP, RECREATION, SUPPORT
0175	SUPPORT, CAUSEWAY, CR 2, REVETMENT, SEDIMENTATION
0007	SUPPORT, PILING
0038	SUPPORT, PILING
0469	SUPPORT, SUPPORT, BULKHEAD, CR 3, CUMULATIVE EFFECTS, HABITAT, LAUNCH, MOORING, PIER, PRODUCTIVITY, PROTECT, RAMP, RECREATION
0416	TIDE GATE, CR 2, DREDGE/FILL, GROIN, HARBOR, MOORING
0002	TRAINING, BREAKWATER, JETTY, PROTECT
0050	TRAINING, BREAKWATER, CR 1, DREDGE/FILL, FISH, INVERTEBRATES, JETTY, LITTORAL PROCESSES, STABILIZE
0079	TRAINING, BREAKWATER, BULKHEAD, EROSION, GROIN, HARBOR, LITTORAL PROCESSES, PROTECT, REVETMENT, SEDIMENTATION, STABILIZE

KEYWORD INDEX

REF. NO.	KEYWORD(S)
0173	TRAINING, BREAKWATER, BULKHEAD, CR 3, CR 4, CR 5, EROSION, GROIN, JETTY, LITTORAL PROCESSES, PROTECT, STABILIZE
0479	TRAINING, BREAKWATER, BULKHEAD, CR 3, CR 4, CR 5, GROIN, JETTY, PIER, PROTECT, REVETMENT, STABILIZE
0512	TRAINING, BREAKWATER, CR 1, HABITAT
0138	TRAINING, BULKHEAD, CR 6, CR 7, GROIN, JETTY, LITTORAL PROCESSES, PROTECT, REVETMENT, STABILIZE
0075	TRAINING, EROSION, GROIN, LITTORAL PROCESSES, PROTECT
0211	TURTLES, BEAUTIFY, CR 5, DREDGE/FILL, LITTORAL PROCESSES, NESTING, RESEARCH NEEDS
0004	UNUSABLE
0008	UNUSABLE
0010	UNUSABLE
0018	UNUSABLE
0026	UNUSABLE
0032	UNUSABLE
0034	UNUSABLE
0035	UNUSABLE
0040	UNUSABLE
0042	UNUSABLE
0044	UNUSABLE
0045	UNUSABLE
0057	UNUSABLE
0058	UNUSABLE
0073	UNUSABLE
0084	UNUSABLE
0089	UNUSABLE
0090	UNUSABLE
0103	UNUSABLE
0104	UNUSABLE
0107	UNUSABLE
0108	UNUSABLE
0115	UNUSABLE
0117	UNUSABLE
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0133	UNUSABLE
0136	UNUSABLE
0147	UNUSABLE
0148	UNUSABLE
0149	UNUSABLE
0150	UNUSABLE
0151	UNUSABLE
0152	UNUSABLE
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0154	UNUSABLE
0157	UNUSABLE
0160	UNUSABLE
0164	UNUSABLE
0178	UNUSABLE
0183	UNUSABLE

REF. NO.	KEYWORD(S)
0185	UNUSABLE
0203	UNUSABLE
0204	UNUSABLE
0213	UNUSABLE
0214	UNUSABLE
0215	UNUSABLE
0219	UNUSABLE
0220	UNUSABLE
0222	UNUSABLE
0223	UNUSABLE
0226	UNUSABLE
0229	UNUSABLE
0231	UNUSABLE
0232	UNUSABLE
0233	UNUSABLE
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0254	UNUSABLE
0261	UNUSABLE
0262	UNUSABLE
0263	UNUSABLE
0264	UNUSABLE
0265	UNUSABLE
0270	UNUSABLE
0274	UNUSABLE
0275	UNUSABLE
0276	UNUSABLE
0277	UNUSABLE
0278	UNUSABLE
0285	UNUSABLE
0295	UNUSABLE
0296	UNUSABLE
0297	UNUSABLE
0299	UNUSABLE
0302	UNUSABLE
0303	UNUSABLE
0305	UNUSABLE
0307	UNUSABLE
0309	UNUSABLE
0311	UNUSABLE
0316	UNUSABLE
0317	UNUSABLE
0318	UNUSABLE
0323	UNUSABLE

KEYWORD INDEX

REF. NO.	KEYWORD(S)
0329	UNUSABLF
0331	UNUSABLE
0338	UNUSABLE
0340	UNUSABLE
0343	UNUSABLE
0344	UNUSABLE
0351	UNUSABLE
0355	UNUSABLE
0356	UNUSABLE
0360	UNUSABLE
0365	UNUSABLE
0386	UNUSABLE
0387	UNUSABLE
0390	UNUSABLE
0391	UNUSABLE
0400	UNUSABLE
0412	UNUSABLE
0417	UNUSABLE
0418	UNUSABLE
0419	UNUSABLE
0420	UNUSABLE
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0438	UNUSABLE
0439	UNUSABLE
0443	UNUSABLE
0446	UNUSABLE
0447	UNUSABLE
0450	UNUSABLE
0453	UNUSABLE
0472	UNUSABLE
0473	UNUSABLE
0480	UNUSABLE
0482	UNUSABLE
0483	UNUSABLE
0492	UNUSABLE
0497	UNUSABLE
0502	UNUSABLE
0503	UNUSABLE
0504	UNUSABLE
0505	UNUSABLE
0506	UNUSABLE
0507	UNUSABLE
0515	UNUSABLE
0516	UNUSABLE
0523	UNUSABLE

REF. NO.	KEYWORD(S)
0526	UNUSABLE
0531	UNUSABLE
0532	UNUSABLE
0535	UNUSABLE
0539	UNUSABLE
0541	UNUSABLE
0543	UNUSABLE

****
REF. NO.-0350

ADEE, B.H.   1975.

ANALYSIS OF FLOATING BREAKWATER PERFORMANCE.

WASHINGTON SEA GRANT PUBL. NO. WSG-TA-75-22. 18 PP.

A TWO DIMENSIONAL LINEAR THEORETICAL MODEL HAS BEEN DEVELOPED WHICH CAN PREDICT THE PERFORMANCE OF FLOATING BREAKWATERS OF ARBITRARY CROSS- SECTIONAL SHAPE, INCLUDING CATAMARANS. THIS THEORY IS APPLIED TO VARIOUS BREAKWATERS OF DIFFERENT SHAPES AND RESULTS ARE COMPARED WITH MEASUREMENTS FROM THE MODEL TANK AND PROTOTYPE INSTALLATION IN THE FIELD. THESE RESULTS INDICATE THAT THE THEORETICAL MODEL MAY BE VERY USEFUL AS A DESIGN AND RESEARCH TOOL AND WHERE ADDITIONAL DEVELOPMENT OF THE THEORETICAL MODEL IS REQUIRED. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: BREAKWATER, HARBOR

****
REF. NO.-0483

ADEE, B.H. MARTIN, W.   1974.

THEORETICAL ANALYSIS OF FLOATING BREAKWATER PERFORMANCE.

PP. 21-39 IN: PROC. FLOATING BREAKWATERS CONFERENCE, NEWPORT, RI. TECH. SER. NO. 24. (Q.V. KOWALSKI, 1974A).

THE PROBLEM OF COMPUTING THE RESPONSE OF A FLOATING-BREAKWATER SYSTEM ACTED UPON BY INCIDENT WAVES IS CONSIDERED. A THEORETICAL, LINEAR MODEL IS DEVELOPED BASED ON THE ASSUMPTIONS OF DEEP WATER, AN INVISCID FLUID, IRROTATIONAL FLUID FLOW, SMALL INCIDENT WAVES AND SMALL BREAKWATER MOTIONS., THE BREAKWATER IS ASSUMED TO BE LONG AND UNIFORM IN THE DIRECTION PARALLEL TO THE INCIDENT WAVE CRESTS. THESE ASSUMPTIONS PERMIT THE FORMULATION OF A SET OF COUPLED, LINEAR, SECOND ORDER DIFFERENTIAL EQUATIONS FOR THE BREAKWATER SWAY, HEAVE AND ROLL MOTIONS. THE SOLUTIONS TO FOUR SIMILAR BOUNDARY-VALUE PROBLEMS FOR THE VELOCITY POTENTIAL PERMIT THE COMPUTATION OF THE EXCITING FORCES AND HYDRODYNAMIC COEFFICIENTS REQUIRED IN THE EQUATIONS OF MOTION. THE DIFFRACTED AND BREAKWATER MOTION GENERATED WAVE FIELDS ARE OBTAINED FROM THE SOLUTION OF THE BOUNDARY-VALUE PROBLEMS. COMPUTER CALCULATED BREAKWATER SYSTEM RESPONSE IS COMPARED WITH EXPERIMENTALLY OBTAINED DATA FOR A BREAKWATER OF RECTANGULAR CROSS SECTION. ALTHOUGH THERE ARE SOME DESCREPANCIES, THE THEORETICAL MODEL PROVIDES REASONABLE PREDICTIONS OF THE TRANSMITTED WAVES AND BREAKWATER MOTIONS. (NTIS MODIFIED AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0433

ADIE, D.W. 1976.

POLLUTION CONTROL.

PP. 276-286 IN D.W. ADIE, MARINAS, A WORKING GUIDE TO THEIR DEVELOPMENT AND DESIGN, CAHUERS BOOKS, BOSTON.

THE EFFECTS OF POLLUTION UPON MARINAS ARE EXAMINED. POLLUTION, EITHER GENERATED BY THE MARINA OR IMPOSED UPON IT FROM OUTSIDE HAS BECOME A PROBLEM AROUSING PUBLIC INTEREST. SANITATION, RUBBISH DISPOSAL, ALGAE, PETROL AND OIL, AND NOISE ARE ALL DISCUSSED IN TERMS OF MARINAS IN THE UNITED KINGDOM. THE LEGAL ASPECTS, PARTICULARLY THOSE LAWS REGARDING POLLUTION OF ALL TYPES ARE LISTED.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0144

AHRENS, J.P. 1975.

LARGE WAVE TANK TESTS OF RIPRAP STABILITY.

U.S. ARMY CORPS OF ENGINEERS. CERC TECH. MEMO NO. 51. 41 PP.

TESTS OF RIPRAP STABILITY UNDER WAVE ATTACK WERE CONDUCTED AT PROTOTYPE SCALE IN THE LARGE WAVE TANK AT THE U.S. ARMY COASTAL ENGINEERING RESEARCH CENTER (CERC). WAVE HEIGHTS RANGING FROM 1.4 TO 6 FEET AND WAVE PERIODS RANGING FROM 2.8 TO 11.3 SECONDS WERE USED. THREE EMBANKMENT SLOPES, 1 ON 2.5, 1 ON 3.5, AND 1 ON 5, WERE TESTED. THE RIPRAP STONE WAS A DIORITE PLACED ON THE EMBANKMENTS BY DUMPING. THE MEDIAN STONE WEIGHTS OF THE RIPRAP RANGED FROM 27 TO 120 POUNDS. THE STUDY SHOWED THAT WAVE PERIOD, BECAUSE OF ITS INFLUENCE ON BREAKER CHARACTERISTICS, HAS A SIGNIFICANT EFFECT ON RIPRAP STABILITY. WAVE CONDITIONS WHICH PRODUCE THE LOWEST RIPRAP STABILITY ARE PREDICTABLE AND ARE ASSOCIATED WITH A COLLAPSING-TYPE BREAKER. FOR THE MOST DANGEROUS WAVE CONDITIONS, THE AVERAGE STABILITY COEFFICIENT WAS 2.70 FOR A 1 ON 2.5 SLOPE, 2.36 FOH A 1 ON 3.5 SLOPE, AND 2.11 FOR A 1 ON 5 SLOPE. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: REVETMENT, PROTECT, CR 6

****
REF. NO.-0194

ALFIERI, D.J. 1975.

ORGANISMAL DEVELOPMENT ON AN ARTIFICIAL SUBSTRATE: 1 JULY 1972 TO 6 JUNE 1974.

REF. NO.-0194 (CONTINUED)

ESTUARINE AND COASTAL MARINE SCIENCE 3:465-472.

THE USE OF OLD AUTOMOBILE TIRES AS ARTIFICIAL REEFS IS DISCUSSED. DESIGN CONSTRUCTION AND MONITORING THE GROWTH OF ATTACHED BIOTA, AS WELL AS ANALYZING THE EFFECTIVENESS OF TIRES AS AN ARTIFICIAL SUBSTRATE ARE EXPLORED. THE RESULTS INDICATE THAT ARTIFICIAL REEFS PROVE OF USE IN COLONIZING AN OTHERWISE BARREN AREA BY PROVIDING A SOLID SUBSTRATE TO WHICH ORGANISMS CAN ADHERE AND CONGREGATE. THE REEFS AFFORD AN INCREASED BIOMASS TO THE IMMEDIATE AREA, AS WELL AS PROVIDING SHELTER AND FOOD FOR ORGANISMS. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: REEF, CR 7, SUBSTRATE, HABITAT

****

REF. NO.-0316

ALLEN, G.W. 1964.

ESTUARINE DESTRUCTION...A MONUMENT TO PROGRESS.

NORTH AMERICAN WILDLIFE CONF. 29:324-331.

THIS PAPER OUTLINES SOME OF THE SOCIAL REASONS BEHIND ESTUARINE DESTRUCTION AND BRIEFLY DESCRIBES EXAMPLES OF FEDERAL INVOLVEMENT IN ESTUARINE ALTERATIONS. ONE OF THE PROBLEMS ENCOUNTERED IN PRESERVING ESTUARIES IS STRONG LOCAL SUPPORT OF INDUSTRIAL, AGRICULTURAL OR RESIDENTIAL DEVELOPMENT WHICH WOULD RESULT IN LOSS OF TIDELANDS AND MARSH AREAS. NAVIGATION CHANNELS HAVE CAUSED MUCH DESTRUCTION IN ESTUARIES AND HAVE ALSO ACCOUNTED FOR ENCROACHMENT OF SALT WATER IN RIVERS AND FRESHWATER LAKES. THE LABORATORY AT DAUPHIN ISLAND, ALABAMA IS INVOLVED IN VARIED PROJECTS CONCERNING PRODUCTIVITY IN ESTUARIES.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****

REF. NO.-0119

ALLEN, R.H. 1972.

A GLOSSARY OF COASTAL ENGINEERING TERMS.

U.S. ARMY CORPS OF ENGINEERS. CERC MISC. PAPER. 2-72. 55 PP.

A GLOSSARY OF TERMS USED BY COASTAL ENGINEERS IS PRESENTED. THE TERMS APPLY TO SUCH SUBJECTS AS WAVES, TIDES, LITTORAL PROCESSES, SHORE PROTECTION, SHORE STRUCTURES, AND COASTAL GEOMORPHOLOGY. PRIMARY SOURCES ARE CITED. (AUTHOR ABSTRACT)

REF. NO.-0119 (CONTINUED)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: REVETMENT, BULKHEAD, GROIN, PIER, HARBOR, PILING, JETTY, BREAKWATER, LITTORAL PROCESSES

****
REF. NO.-0182

ALLISON, D.M. SAVAGE, R.P. 1976.

TESTS OF LOW-DENSITY MARINE LIMESTONE FOR USE IN BREAKWATERS.

U.S. ARMY CORPS OF ENGINEERS. CERC TECH. PAPER NO. 76-4. 43 PP.

A POROUS, LOW-DENSITY LIMESTONE (CEMENTED SHELL STONE) AVAILABLE FROM A QUARRY IN NEW BERN, NORTH CAROLINA, WAS SUGGESTED FOR USE AS A COVER LAYER IN COASTAL STRUCTURES. THE STABILITY OF THE NEW BERN STONE AS A RUBBLE-MOUND ARMOR UNIT WAS TESTED IN THE LARGE WAVE TANK AT CERC. FOURTEEN TESTS WERE CONDUCTED WITH 3.75, 5.60, AND 7.87 SECOND WAVE PERIODS AND WAVE HEIGHTS RANGING FROM 2.5 TO 4.2 FEET. THE ARMOR STONES WERE ALSO NUMBERED AND WEIGHED AT THE BEGINNING AND END OF TESTING TO EVALUATE THE DURABILITY OF THE STONE. RESULTS OF THE STABILITY TEST SHOWED ARMOR UNIT STABILITY COEFFICIENTS OF 2.8, 3.5, AND 7.8 FOR THE 3.75 AND 7.87 SECOND WAVE PERIODS, RESPECIVELY. THE STONES STILL IDENTIFIABLE AT THE END OF TESTING LOST AN AVERAGE OF 5.5 PERCENT OF THEIR ORIGINAL WEIGHT. AS A RESULT OF THE STONE WEIGHT LOSSES EXPERIENCED IN THE LABORATORY TESTS, 13 STONES WERE PLACED ON OR NEAR A JETTY IN FORT MACON, NORTH CAROLINA, BY THE U.S. ARMY ENGINEER DISTRICT, WILMINGTON. THE STONES WERE PERIODICALLY REMOVED, WEIGHED, AND REPLACED FOR ABOUT 18 MONTHS. RESULTS SHOWED THAT THE STONES CONSIDERED TO BE OF THE BEST QUALITY HAD LOST FROM 5 TO 20 PERCENT OF THEIR ORIGINAL WEIGHT AFTER 6 MONTHS. ADDITIONAL HEAVY WEIGHT LOSSES (45 TO 65 PERCENT) TO THOSE STONES STILL LOCATED AT THE END OF TESTING INDICATED THAT EXCESSIVE WEIGHT LOSS WOULD CONTINUE. THE USE OF NEW BERN STONE AS A COVER OR UNDERLAYERS OF RUBBLE-MOUNT COASTAL STRUCTURES IS NOT RECOMMENDED. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: BREAKWATER, PROTECT

****
REF. NO.-0047

ANDERSON, J.W. 1975.

VALUE ENGINEERING COASTAL JETTIES.

J. SOC. AMER. MILITARY ENG. 64 (437): 158-160.

VALVE ENGINEERING (VE) IS DEFINED BY THE CORPS OF ENGINEERS AS AN ORGANIZED ANALYSIS OF THE FUNCTION OF CONSTRUCTION, OPERATIONS, SYSTEMS, EQUIPMENT, FACILITIES, PROCEDURES, METHODS, AND SUPPLIES FOR THE PURPOSE OF ACHIEVING THE REQUIRED FUNCTION AT THE LOWEST COST CONSISTENT WITH

REF. NO.-0047 (CONTINUED)

PERFORMANCE, RELIABILITY AND MAINTAINABILITY REQUIREMENTS. A TEAM OF EXPERTS WITH DIVERSE BACKGROUNDS PERFORMS THIS ANALYSIS IN FIVE STEPS: INFORMATION, SPECULATION, ANALYSIS, DEVELOPMENT, AND PRESENTATION. VE WAS USED ON THE TILLAMOOK, OREGON SOUTH JETTY TO SOLVE CONSTRUCTION PROBLEMS ARISING FROM STRONG CROSSCURRENTS. THE VE TEAM'S PROPOSALS RESULTED IN A TOTAL PROJECT SAVINGS OF $1,857,000.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: CR 1, JETTY, PROTECT

****
REF. NO.-0468

ANGAS, W.M. 1960.

SHARK RIVER INLET SAND BY-PASSING PROJECT.

J. WATERWAYS AND HARBORS DIVISION ASCE 86(WW3):29-47.

THE BY-PASSING OF SAND ACROSS SHARK RIVER INLET ON THE NEW JERSEY COAST APPEARS TO BE AN EFFECTIVE METHOD OF NOURISHING AND RESTORING A STARVED BEACH AT THE DOWN-DRIFT SIDE OF THE INLET. THE BY-PASSING OPERATION, WHICH WAS UNDERTAKEN AS A FULL SCALE EXPERIMENT, IS CONSIDERED SUCCESSFUL BECAUSE: 1) THE SAND BY-PASSED ACROSS THE INLET IS COARSER, BETTER GRADED, AND HAS MADE A BEACH FILL THAT IS MORE STABLE THAN BEACH FILLS MADE ELSEWHERE ON THE NEW JERSEY COAST WITH FINE SANDS SUCH AS MIGHT HAVE BEEN OBTAINED BY DREDGING IN SHARK RIVER; 2) THE BY-PASSED SAND MAKES A MORE ATTRACTIVE BEACH THAN SANDS USUALLY OBTAINED BY DREDGING IN INLAND WATERS INASMUCH AS IT IS FREER OF OBJECTIONABLE SHELL FRAGMENTS, CLAY BALLS, AND SILT; 3) SAND OBTAINED FROM THE ACCRETION AT THE UP-DRIFT SIDE OF THE INLET HAS PROVED CHEAPER THAN SANDS OBTAINED FROM OTHER SOURCES WHEN COMPARATIVE COSTS ARE BASED ON THE UNIT PRICE OF SAND THAT STAYS IN PLACE ON THE BEACH; 4) THE REMOVAL OF THE EXCESS ACCRETION AT THE UP-DRIFT SIDE OF THE INLET IS BENEFITING THE COMMUNITY FACING THE UP-DRIFT BEACH IN THREE WAYS: IT RESTORES TO UTILITY MUCH OF THE LENGTH OF A 'FISHING PIER' WHICH WAS BEING MADE USELESS BY THE DEVELOPMENT OF DRY BEACH UNDER IT; THE REDUCTION OF THE BEACH BERM TO AN OPTIMUM WIDTH OF FROM 100 FT TO 200FT HAS BEEN FOUND DESIRABLE; AND IT IS ANTICIPATED THAT THE REMOVAL OF THE EXCESS ACCRETON WILL FACILITATE THE MAINTENANCE OF THE NAVIGATION CHANNEL OF SHARK RIVER INLET.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: LITTORAL PROCESSES, JETTY, GROIN, BREAKWATER, CR 6

****
REF. NO.-0245

ANONYMOUS. 1965.

PRECAST CONCRETE MAKES A FISHING PIER.

ENGINEERING NEWS-RECORD 174(14):81-82.

A FISHING PIER OVER 1300 FEET FROM SHORE AND IN 23 FEET OF WATER WAS CONSTRUCTED AT VENICE, CALIFORNIA. THE PIER IS MADE ALMOST ENTIRELY OF PRECAST CONCRETE COMPONENTS. THE 167 PRESTRESSED PILES, WHICH WEIGHED UP TO 15 TONS APIECE, WERE THE ONLY COMPONENTS NOT CAST AT THE JOB SITE AND WERE BARGED IN. THE ARTICLE IS CHIEFLY A COMPREHENSIVE AND DETAILED REPORT OF THE CONSTRUCTION METHODS.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0318

ANONYMOUS. 1975.

STATE COMMISSION TACKLES CUMULATIVE IMPACT IN HUNTINGTON BEACH.

THE COASTLINE LETTER 31:5. SEA GRANT PUBL. SCU-Z3-75-020.

THE CALIFORNIA STATE COMMISSION IS REGULATING NEW RESIDENTIAL DEVELOPMENT SO THAT A SERIES OF SEEMINGLY INSIGNIFICANT STRUCTURES DOES NOT INCREMENTALLY CHIP AWAY AT REMAINING OPEN SPACE. THIS ARTICLE DISCUSSES THEIR ACTION CONCERNING APPLICATIONS FOR TWENTY-FIVE FOURPLEXES IN HUNTINGTON BEACH, ORANGE COUNTY. SOME WERE PERMITTED AND SOME DENIED. A FULL-SCALE URBAN RENEWAL EFFORT MAY BE NECESSARY FOR THE AREA.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0324

ANONYMOUS. 1973.

THE PROBLEM OF GREAT LAKES SHORELAND DAMAGE AND A STRATEGY FOR SHORELINE DAMAGE REDUCTION.

COASTAL ZONE INFORMATION CENTER. 42 PP.

THE BROCHURE SUMMARIZES THE STATUS AND SCOPE OF FEDERAL PROGRAMS FOR MITIGATING SHORE DAMAGES ON THE GREAT LAKES AND THE INTEREST OF THE GREAT LAKES STATES IN THE STRATEGY ALTERNATIVES FOR SHORELAND DAMAGE REDUCTION. BACKGROUND INFORMATION IS PRESENTED, FOLLOWED BY INFORMATION ON EMERGENCY FEDERAL PROGRAMS FOR SHORELAND DAMAGE REDUCTION, EROSION CONTROL PROGRAMS, PERMIT PROGRAMS, NATIONAL FLOOD INSURANCE PROGRAMS, FLOOD CONTROL PROGRAMS, NAVIGATION PROGRAMS, COASTAL ZONE MANAGEMENT PROGRAMS, AND AN ANALYSIS AND EVALUATION OF STATE STRATEGY ALTERNATIVES. SEVERAL PROJECTS ARE UNDERWAY AT LOCATIONS LISTED IN THE ARTICLE.

NATURE OF REFFRENCE: ENG

REF. NO.-0324 (CONTINUED)

TYPE OF REFERFNCE: PUB

DESCRIPTORS: HARBOR, CR 8

****
REF. NO.-0188

AYERS, J. STOKES, R. 1976.

SIMPLIFIED DESIGN METHODS OF TREATED TIMBER STRUCTURES FOR SHORE, BEACH AND MARINA CONSTRUCTION.

U.S. ARMY CORPS OF ENGINEERS. CERC MISC. REPORT NO. 76-4. 42 PP. 10.

PRESSURE-TREATED TIMBER HAS WIDE APPLICATION IN THE WATERFRONT AND SHORE PROTECTION STRUCTURES THAT ARE BUILT IN MARINA DEVELOPMENTS AND OTHER SHORE AND BEACH LOCATIONS BORDERING ON BAYS, LAKES AND RIVER RESORTS. BECAUSE OF ITS STRENGTH, DURABILITY AND ECONOMY, PRESSURE-TREATED TIMBER IS THE PRINCIPAL CONSTRUCTION MATERIAL FOR BULKHEADS, SEAWALLS, PIERS AND GROINS AT LOCATIONS WITH MILD EXPOSURE AND SHALLOW TO INTERMEDIATE WATER DEPTHS. THIS REPORT IS DESIGNED TO PROVIDE COASTAL ENGINEERS WITH SIMPLIFIED TECHNICAL GUIDELINES ON THE PROPER USE OF TREATED TIMBER IN COASTAL STRUCTURES. (MODIFIED AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: BULKHEAD, GROIN, PIER, PILING, PROTECT, MOORING, SUPPORT, HARBOR, CR 6

****
REF. NO.-0021

BACKMAN, T.W. BARILOTTI, D.C. 1976.

IRRADIANCE REDUCTION : EFFECTS ON STANDING CROPS OF THE EELGRASS ZOSTERA MARINA IN A COASTAL LAGOON.

MARINE BIOL. 34: 33-40.

ABUNDANCE OF THE EELGRASS ZOSTERA MARINA L. WAS STUDIED IN A COASTAL LAGOON IN SOUTHERN CALIFORNIA , AND WAS FOUND TO CORRELATE WITH THE LEVEL OF IRRADIANCE AT DEPTHS GREATER THAN 0.5 M BELOW TIDAL DATUM. RESULTS OF CONTROLLED FIELD EXPERIMENTS, USING CANOPIES TO REDUCE DOWNWELLING ILLUMINANCE BY 63, CONFIRMED THAT TURION DENSITY IS A FUNCTION OF THE IRRADIANCE THE PLANTS RECEIVE. BY DAY 18 OF THE EXPERIMENT, TURION DENSITY IN THE SHADED EXPERIMENTAL AREAS HAD DECREASED COMPARED TO THE DENSITY OF ADJACENT UNSHADED CONTROLS. TURION DENSITIES WERE CONTINUALLY LOWER THROUGHOUT THE 9-MONTH STUDY IN THE EXPERIMENTAL AREAS, WHICH AT THE END OF THE STUDY HAD A TURION DENSITY ONLY 5% THAT OF THE CONTROL AREAS. FLOWERING IN THE EXPERIMENTAL AREAS WAS ALSO INHIBITED BY SHADING. THE BIOLOGICAL IMPLICATIONS OF THESE FINDINGS ARE DISCUSSED WITH RESPECT TO SEASONAL CHANGES IN INCIDENT SOLAR RADIATION, WATER TRANSPARENCY, AND CHANGES IN WATER QUALITY DUE TO MAN'S INCREASED INTERVENTION IN THE NATURAL PROCESSES OF COASTAL LAGOONS. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: BIO

REF. NO.-0021 (CONTINUED)

TYPE OF REFERENCE: PUB

DESCRIPTORS: AQUATIC PLANTS, CR 2

****
REF. NO.-0371

BAILEY, D. 1977.

CONCERNING FLORIDA KEYS BRIDGE REPLACEMENTS AND OTHER FLORIDA SHORELINE CONSTRUCTION PROJECTS.

ENV. SPEC. I. BUR. ENV. PROTECT, FLORIDA GAME AND FRESHWATER FISH COMM. PERS. COMM.

THE HISTORICAL BACKGROUND OF THE PROPOSED FLORIDA KEYS BRIDGE REPLACEMENT PROJECT IS GIVEN. AMONG THE POSSIBLE PROBLEMS WHICH THIS PROJECT MAY INTENSIFY ARE SALT WEDGE INTRUSION INTO THE EVERGLADES, DESTRUCTION OF TURTLE GRASS BEDS AND MANGROVE COMMUNITIES AND SILTATION OF THE BARRIER REEF ON THE EAST SIDE OF THE KEYS. THE COMMISSION ENCOURAGES RIPRAP REVETMENTS RATHER THAN VERTICAL BULKHEADS ON THE SHORELINE AND ARE MORE CONCERNED WITH PROTECTING PRISTINE AREAS THAN WITH STOPPING SMALL PROJECTS IN ALREADY DEGRADED AREAS. OTHER SUBJECTS SUCH AS BEACH REPLENISHMENT AND DEAD-END CANALS ARE ALSO DISCUSSED.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: INT

DESCRIPTORS: LAND PLANTS, AQUATIC PLANTS, FISH, CR 4, BRIDGE, CUMULATIVE EFFECTS, CAUSEWAY, REVETMENT

****
REF. NO.-0121

BALDWIN, W.P. 1968.

IMPOUNDMENTS FOR WATERFOWL ON SOUTH ATLANTIC AND GULF COASTAL MARSHES.

PP. 127-133 IN NEWSOM, J.D. (ED) PROC. OF THE MARSH AND ESTUARY MANAGEMENT SYMP. BATON ROUGE, LA.

SEVEN MILLION ACRES OF COASTAL, TIDAL MARSHES, PLUS SEVEN MILLION ACRES OF INLAND MARSHES, ARE THREATENED IN EIGHT SOUTHERN MARITIME STATES WITH DECLINE IN ACREAGE AND QUALITY. IN THEIR NORMAL CONDITION THESE MARSHES ARE KEPT VITAL THROUGH THE INTERPLAY OF DROUGHT FLUCTUATION, SALINITY FLUCTUATION, FIRE, ANIMAL USE, HURRICANES, AND FRESHETS. IF MAN MUST COMPENSATE FOR THE LOSS OF NATURAL MARSH WITH INTENSIFIED AND EXPENSIVE IMPOUNDMENT MANAGEMENT, THE MANAGERS MUST BE SKILLED IN THE INTERPRETATION OF A RAPID AND COMPLEX ECOLOGICAL SUCCESSION BY SEVERAL HUNDRED SPECIES OF PLANTS, AND MUST ACTIVELY MANIPULATE THE HABITATS TO ENCOURAGE THE SEVERAL DOZEN SPECIES MOST DESIRED.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: DIKE, HABITAT, BIRDS, AQUATIC PLANTS, CR 3, CR 4, CR 5

****
REF. NO.-0013

BALSILLIE, J.H. BERG, D.W. 1973.

STATE OF GROIN DESIGN AND EFFECTIVENESS.

PROC. 13TH COASTAL ENG. CONF., AMER. SOC. CIVIL ENG. VANCOUVER, B.C. P 1367-1383.

AN ANNOTATED BIBLIOGRAPHY ON GROINS, COMPILED BY BALSILLIE AND BRUNO (1972), HAS PROVIDED THE BACKGROUND FOR THIS PAPER. A REVIEW OF FUNCTIONAL DESIGN CRITERIA IS PRESENTED INCLUDING GROIN LENGTH, HEIGHT, SPACING, PERMEABILITY-ADJUSTABILITY, AND ORIENTATION. A DISCUSSION OF COASTAL PROCESS AND THEIR RELATIONSHIP TO GROIN DESIGN AND EFFECTIVENESS IS ALSO GIVEN. (AUTHOR ABSTRACT)

NATURE OF REFFRENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: GROIN, PROTECT, LITTORAL PROCESSES

****
REF. NO.-0091

BALSILLIE, J.H. BRUNO, R.O. 1972.

GROINS: AN ANNOTATED BIBLIOGRAPHY.

U.S. ARMY CORPS OF ENGINEERS. CERC MISC. PAPER 1-72. 249 PP.

A GROIN IS A SHORE PROTECTIVE STRUCTURE BUILT (USUALLY PERPENDICULAR TO THE SHORE) TO TRAP SEDIMENTARY MATERIAL OR TO RETARD EROSION OF THE SHORE. OF ALL THE SHORE PROTECTIVE STRUCTURES USED BY COASTAL ENGINEERS, THE GROIN IS THE MOST DIFFICULT TO DESIGN-FUNCTIONALLY AND STRUCTURALLY. BECAUSE THIS COMPLEXITY OF DESIGN WAS NOT RECOGNIZED UNTIL RECENTLY, MANY EARLY GROIN INSTALLATIONS WERE FAILURES. CERC SUPPORTS A CONTINUING RESEARCH PROGRAM DEVOTED TO GAINING A BETTER UNDERSTANDING OF GROINS. THIS BIBLIOGRAPHY EVOLVED FROM THE GROIN RESEARCH PROGRAM. ABOUT 460 ARTICLES PUBLISHED SINCE 1900 ON GROINS AND GROIN-TYPE STRUCTURES ARE PRESENTED IN THIS BIBLIOGRAPHY. ANNOTATIONS ACCOMPANY EACH BIBLIOGRAPHIC ENTRY WHERE POSSIBLE. INDICES OF AUTHOR, TITLES, AND SUBJECTS ARE INCLUDED TO AID THE RESEARCHER. UNAVAILABLE LITERATURE SUCH AS FOREIGN ARTICLES, ALTHOUGH NOT ANNOTATED, ARE INCLUDED AS ENTRIES IN BOTH THE ANNOTATED SECTION AND THE INDICES. (NTIS ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: GROIN, PROTECT

****
REF. NO.-0276

BARADA, W. PARTINGTON, W.M., JR. 1972.

REPORT OF INVESTIGATION OF THE ENVIRONMENTAL EFFECTS OF PRIVATE WATER FRONT CANALS.

ENVIRONMENTAL INFORMATION CENTER, WINTER PARK, FLORIDA. 63 PP. AND APPENDICES.

REF. NO.-0276 (CONTINUED)

AN INVESTIGATION OF THE IMPACT OF CANAL-TYPE WATERFRONT DEVELOPMENTS ON FLORIDA'S AQUATIC ENVIRONMENT AND ITS POSSIBLE CONFLICT OF PUBLIC INTEREST IS DISCUSSED. TOPICS INCLUDE EFFECTS ON FISH AND FISHING, CHANGES IN WATER QUALITY, BENTHOS, SOURCES OF POLLUTANTS, EFFECT ON PUBLIC HEALTH, EFFECT ON GROUNDWATER, AND ECONOMIC IMPACT OF THESE DEVELOPMENTS. THE STUDY WAS BASED ON A LITERATURE REVIEW AND ASSESSMENT BY KNOWLEDGEABLE PERSONS. DEVELOPING PRIVATE WATERFRONT PROPERTY CAUSES SERIOUS ENVIRONMENTAL DEGRADATION BEYOND THE PRIVATE BOUNDARIES AND THEREFORE AFFECTS PUBLIC INTEREST.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: GOV REP

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0116

BARRETT, R.J. 1966.

USE OF PLASTIC FILTERS IN COASTAL STRUCTURES.

PROC. 10TH CONF. ON COASTAL ENG. PP. 1048-1067.

IT HAS LONG BEEN THE OPINION OF MANY ENGINEERS THAT THE PRIMARY CAUSE OF FAILURE IN CERTAIN COASTAL STRUCTURES IS DUE TO AN INADEQUATE FILTER SYSTEM. NORMALLY, FILTERS FOR GRANULAR SOILS ARE MADE UP OF LAYERS OF GRADED SAND, GRAVEL AND STONE MATERIALS IN VARIOUS COMBINATIONS AND THICKNESS DIMENSIONS. VERY OFTEN THESE MATERIALS ARE EXPENSIVE AND IN SOME CASES, DUE TO GEOGRAPHIC LOCATION, ARE UNAVAILABLE. EVEN IF THE REQUIRED MATERIALS ARE EASILY ACCESSIBLE, PROPER PLACEMENT IS TEDIOUS AND DEMANDS STRICT SUPERVISION. THIS PAPER DISCUSSES THE USE OF 'PLASTIC FILTERS' AS A REPLACEMENT FOR GRADED FILTER SYSTEMS AND FILTER BLANKETS IN COASTAL STRUCTURES. WHILE THIS DISCUSSION AND ILLUSTRATIONS ARE LIMITED TO COASTAL STRUCTURES, PLASTIC FILTERS CAN AND HAVE BEEN USED IN RIVER, LAKE, CANAL, DAM AND OTHER HYDRAULIC STRUCTURES.
(AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: REVETMENT, BULKHEAD, JETTY, BREAKWATER, CR 4

****
REF. NO.-0362

BAUER, W. 1974b.

THE DRIFT SECTORS OF WHATCOM COUNTY MARINE SHORES, THEIR SHOREFORMS AND GEO-HYDRAULIC STATUS.

WHATCOM COUNTY PLANNING COMMISSION, BELLINGHAM, WA.

A REPORT IS PRESENTED ON THE SEARCH, INVENTORY, BOUNDARY DETERMINATION, AERIAL PHOTO-DOCUMENTATION, MAPPING, FIELD INVESTIGATION, AND RESOURCE ANALYSES OF THE MARINE DRIFT

REF. NO.-0362 (CONTINUED)

SECTORS OF WHATCOM COUNTY, AND THEIR GEO-HYDRAULIC ENVIRONMENTS. AN EXPLANATION OF TERMINOLOGY AND CLASSIFICATION SYSTEMS IS GIVEN, FOLLOWED BY A CHART OF EACH OF THE 34 DRIFT SECTORS WITH INFORMATION ON: BOUNDARIES, SHOREFORMS, BLUFF FACTORS, INTRUSION STATUS (PRESENCE OF SHORELINE STRUCTURES), USE POTENTIAL AND LIMITS AND SPECIAL NOTES OR PROBLEMS.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: BULKHEAD, REVETMENT, CR 1

****
REF. NO.-0368

BAUER, W. 1977.

INTERVIEW WITH WOLF BAUER.

SHORE-RESOURCE CONSULTANT, SEATTLE, WA. PERS. COMM.

AN INTERVIEW WAS CONDUCTED, CONCERNING WOLF BAUER'S EXPERIENCES WITH MINOR SHORELINE STRUCTURES. BAUER HAS COINED SEVERAL TERMS TO USE IN EVALUATING COASTAL CONDITIONS AND ALTERNATIVE ACTIONS. HE IS GENERALLY OPPOSED TO BULKHEADING, RIPRAP AND OTHER SIMILAR STRUCTURES AND PREFERS METHODS THAT WORK WITH THE GEO-HYDRAULIC SHORE PROCESS SYSTEM RATHER THAN AGAINST IT.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: INT

DESCRIPTORS: BULKHEAD, REVETMENT, CR 1, CUMULATIVE EFFECTS

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REF. NO.-0383

BAUER, W. 1974c.

THE SHORE-PROCESS CORRIDOR: ITS ANATOMY, FUNCTION, AND BASIS FOR SHORELAND PLANNING AND MANAGEMENT.

A PILOT STUDY TO THE OREGON COASTAL CONSERVATION AND DEVELOPMENT COMMISSIONS.

THE 'SHORE-PROCESS CORRIDOR', DEFINED AS THAT SHORE-ZONE STRIP WITHIN WHICH ALL PHYSICAL AND BIOLOGICAL SHORE RESOURCES ARE CONTAINED AND FUNCTION, IS EXPLAINED AND DESCRIBED. THE ANATOMY OF THE SHORE-PROCESS CORRIDOR, THE ENERGY SYSTEMS, FUNCTIONS, AND PARAMETERS FOR A MANAGEMENT APPROACH ARE INCLUDED IN THE DISCUSSION. LEGAL IMPLICATIONS OF THE ACCEPTED USE OF THE CONCEPT OF THE SHORE-PROCESS CORRIDOR ARE PRESENTED. IT IS CONCLUDED THAT WE MUST PROTECT REMAINING NONRENEWABLE RESOURCES, WHILE RAISING ALL OTHER UTILIZATION EFFECIENCIES.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

REF. NO.-0383 (CONTINUED)

DESCRIPTORS: EROSION, CUMULATIVE EFFECTS, CR 1

****
REF. NO.-0384

BAUER, W. 1974a.

CONCURRENT MARINA AND PARK SITING EXPANSION FOR DRAYTON HARBOR.

WHATCOM COUNTY PARK BOARD, PORT OF BELLINGHAM, WA. 23 PP.

AN ANALYSIS OF THE MARINE PARK POTENTIAL OF THE DRAYTON HARBOR AREA IS PRESENTED. INCLUDED IN THE ANALYSIS ARE SITING CONSIDERATIONS, SEMIAHMOO PARK-USE POTENTIALS, ARTIFICIAL PARK-BEACH DEVELOPMENT AND CONSIDERATIONS FOR THE CITY OF BLAINE SUCH AS LOCATION AND PHYSICAL BEACH REQUIREMENTS. EXPANDABLE, MULTIPURPOSE PROGRAMS PLANNED TO REINFORCE EACH OTHER, RATHER THAN TO INTERFERE WITH EACH OTHER ARE RECOMMENDED.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: CR 1, EROSION, CUMULATIVE EFFECTS

****
REF. NO.-0388

BAUER, W. 1970.

PUGET SOUND INVENTORY.

A TIME FOR UNDERSTANDING HERITAGE SERIES. THE MOUNTAINEERS, SEATTLE, WA.

AN INVENTORY AND EVALUATION OF RARE AND SPECIAL LANDFORMS CREATED BY THE WATERS ACTION IN THE PUGET SOUND AREA IS PRESENTED. A GEOLOGIC HISTORY OR EXPLANATION AND MAN'S INTERFERENCE WITH NATURAL PROCESS OF SEA-BLUFF BEACH ZONES, POINTS, SPITS, HOOKS, BARS, AND ESTUARIES IS DISCUSSED. IT IS CONCLUDED THAT THE STATE HAS A RESPONSIBILITY TO RECOGNIZE, CLASSIFY, AND PROTECT THE LIMITED RESOURCES DISCUSSED, AND THAT THERE HAS BEEN A FAILURE TO STUDY AND PLAN FOR THE POTENTIAL OF THESE GEOLOGIC-MARINE LAND FORMS AND FEATURES.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: BULKHEAD, CR 1

****
REF. NO.-0394

BAUER, W. 1975.

BIRCH BAY SHORE RESOURCE ANALYSIS.

REF. NO.-0394 (CONTINUED)

WHATCOM COUNTY PLANNING COMMISSION. WHATCOM COUNTY, WA. CONTRACT NO II-305-15.

THE PURPOSE OF THIS POSITION PAPER IS TO DISCUSS SOME OF THE SHORTCOMINGS AND PROBLEMS ASSOCIATED WITH SHORE 'DEFENSE' MEASURES AND ENCOURAGE BOTH TECHNICAL AND ENVIRONMENTALLY VALID IMPROVEMENTS OVER PRESENT PRATICES AND ATTITUDES. BEACH COMPONENTS, CLASSIFICATION AND SYSTEMS ARE DESCRIBED. RESOURCE VALUES OF ACCRETION SHOREFORMS ARE DISCUSSED AND THE USE OF BULKHEADING IS ALSO DISCUSSED. THE USE OF GRAVEL BERM-BUILDING AS AN ALTERNATIVE FOR RESTORATION OF BIRCH BAY, WASHINGTON ARE PRESENTED.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: CR 1, BULKHEAD, REVETMENT, PROTECT, CUMULATIVE EFFECTS

****
REF. NO.-0553

BAUER, W. 1973.

MANAGEMENT POLICIES WITHIN THE SHORE-PROCESS CORRIDOR. PLANNING AND MANAGEMENT APPROACHES TO PROTECT OUR SHORE-RESOURCE HERITAGE.

WHATCOM COUNTY, WASHINGTON CITIZENS COMMITTEE. 40 PP.

A POSITION PAPER IS PRESENTED TO SERVE AS A CHALLENGE AND TOOL TO SHORE-RESOURCE MANAGEMENT AT THE LOCAL LEVEL. THE TERM 'SHORE-PROCESS CORRIDOR' WHICH RECOGNIZES THE EXISTENCE AND INTERDEPENDENCY OF ALL LAND- WATER ELEMENTS WITHIN SUCH A ZONE, IS ESTABLISHED, REPLACING THE TERM 'SHORELINE'. LIMITATIONS AND OPPORTUNITIES WITHIN THE SHORE-PROCESS CORRIDOR ARE DISCUSSED, INCLUDING THE TOPICS OF: BIO-PROCESS RESERVES, WILDLIFE SPECIES HABITAT, RECREATION, AGRICULTURE, FORESTRY, PARKS, PILED STRUCTURES, ROADS AND PARKING AREAS, BOAT LAUNCH RAMPS, MARINAS, DREDGING, SAND AND GRAVEL OPERATIONS, EROSION DEFENSE, DIKES AND LEVEES BULKHEADED FILLS, JETTIES AND GROINS, AND RESIDENTIAL DEVELOPMENT. IT IS CONCLUDED THAT SHORE RESOURCES, BECAUSE THEY CAN NOT BE REPLACED, MUST NOT BE DESTROYED.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: CR 1, SUPPORT, BRIDGE, RAMP, HARBOR, DREDGE/FILL, BULKHEAD, GROIN

****
REF. NO.-0006

BECKMAN, C. MENZIES, R.J. WAKEMAN, C.M. 1957.

THE BIOLOGICAL ASPECTS OF ATTACK ON CREOSOTED WOOD BY LIMNORIA.

CORROSION 13 : 162-164.

A STUDY WAS MADE OF THE ANIMAL SPECIMENS FOUND IN SAMPLES OF CREOSOTED AND NON-CREOSOTED

REF. NO.-0006 (CONTINUED)

DOUGLAS FIR PILINGS. THE SPECIES CAUSING THE ATTACK ON THE WOOD WAS IDENTIFIED AS LIMNORIA TRIPUNCTATA. DATA ARE GIVEN TO SHOW THE RELATIONSHIP OF TREATED TO UNTREATED SAMPLES WITH REGARD TO ANIMAL SIZE, POPULATION DENSITY AND REPRODUCTION CAPABILITIES. POLLUTION IS DISCUSSED AS A POSSIBLE FACTOR IN THE GROWTH OF LIMNORIA POPULATIONS. DATA ARE GIVEN TO SHOW CHANGES OF FRACTIONATION CHARACTERISTICS WITH TIME FOR CREOSOTE INJECTED INTO PILINGS. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: PILING, INVERTEBRATES, CR 2

****
REF. NO.-0231

BEETON, A.M. 1969.

CHANGES IN THE ENVIRONMENT AND BIOTA OF THE GREAT LAKES.

PP. 150- 187 IN EUTROPHICATION: CAUSES, CONSEQUENCES, CORRECTIVES. NATL. ACAD. SCI. WASH. D.C.

CHANGES IN THE BIOTA AND WATER QUALITY HAVE OCCURRED IN ALL OF THE GREAT LAKES. ALMOST ALL OF THE CHANGES ARE ATTRIBUTED DIRECTLY OR INDIRECTLY TO MAN'S ACTIVITIES (OVERFISHING, INTRODUCTION OF NON-NATIVE FISHES, CHANNEL CONSTRUCTION, WATER POLLUTION). EACH LAKE IS DISCUSSED SEPARATELY.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0168

BELLA, D.A. 1972.

ENVIRONMENTAL CONSIDERATIONS FOR ESTUARINE BENTHAL SYSTEMS.

WATER RES. 6:1409-1418.

ESTUARINE BENTHAL SYSTEMS INVOLVE COMPLEX INTERACTIONS OF BIOLOGICAL, CHEMICAL, PHYSICAL AND HYDRAULIC FACTORS. A CONCEPTUAL MODEL OF SUCH SYSTEMS IS PRESENTED. FIELD RESULTS ARE PRESENTED WHICH ILLUSTRATE THE DIFFERENT TYPES OF BENTHAL SYSTEMS. A NUMBER OF MAN'S ACTIVITIES WHICH CAN AFFECT ESTUARINE BENTHAL SYSTEMS IS DISCUSSED WITH REFERENCE TO THE CONCEPTUAL MODEL PRESENTED. AMONG THESE ARE CHANNELIZATION, DREDGING AND SPOIL DISPOSAL. THE TYPE OF BENTHIC SYSTEM THAT DEVELOPS AT A GIVEN LOCATION CAN BE DEPENDENT ON BIOLOGICAL TURNOVER AND TRANSIENT CONDITIONS MAY ELIMINATE COMMUNITIES CONTRIBUTING TO THIS TURNOVER. RE-ESTABLISHMENT OF PREVIOUS COMMUNITIES MIGHT NOT BE POSSIBLE DUE TO CHANGING CONDITIONS. (MODIFIED AUTHOR ABSTRACT)

NATURE OF REFERENCE: GENERAL

REF. NO.-0168 (CONTINUED)

TYPE OF REFERENCE: PUB

DESCRIPTORS: BENTHOS, CH 1, DREDGE/FILL

****
REF. NO.-0251

BELLA, D.A. 1975.

STRATEGIC APPROACH TO ESTUARINE ENVIRONMENTAL MANAGEMENT.

J. WATERWAYS, HARBORS AND COASTAL ENGINEERING DIVISION, ASCE. 101(1):73-92.

ECOLOGICAL SYSTEMS MUST BE EXAMINED FROM A SPECTRUM OF VIEWS RANGING FROM THOSE OF HIGH PERSPECTIVE-LOW DETAIL TO THOSE OF LOW PERSPECTIVE- HIGH DETAIL. VARIOUS CONCEPTS AND APPROACHES PERTINENT TO THE COMPREHENSIVE ENVIRONMENTAL PLANNING FOR ESTUARIES ARE DEVELOPED. A HIGH PERSPECTIVE-LOW DETAIL VIEW IS EMPLOYED TO EXAMINE THE ORGANIZATION, FUNCTION, AND REQUIREMENTS OF WHOLE ESTUARINE SYSTEMS. A PLANNING APPROACH CALLING FOR THE UNEVEN DISTRIBUTION OF DEVELOPMENT ACTIVITIES AMONG OREGON'S ESTUARINE SYSTEMS IS PRESENTED. A NUMBER OF METHODS, CONCERNS AND PROBLEMS RELATED TO THE IMPLEMENTATION OF THIS APPROACH ARE IDENTIFIED.

NATURE OF REFFRENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0331

BELLER, W.S. 1972.

ENVIRONMENTAL MANAGEMENT OF THE COASTAL ZONE.

TRANS. 37TH N. AMER. WILDL. RES. CONF. PP. 100-109.

ENVIRONMENTAL MANAGEMENT OF THE COASTAL ZONE IS DEFINED, NOTING THAT THE QUALITY OF THE ENVIRONMENT CAN IN LARGE PART BE MEASURED BY THE QUALITY OF ITS AIR, WATER, AND LAND. SOME OF THE COMPETING AND OFTEN CONFLICTING PRESSURES IN THE COASTAL ZONE ARE ENUMERATED. IT IS SUGGESTED THAT THE ROLE OF THE ENVIRONMENTAL MANAGER IS TO DEVISE PLANS SO THAT THE COASTAL PRESSURES CONTRIBUTE TO AN ECOSYSTEM STABILITY THAT WILL PERMIT A PEOPLE TO HAVE THE QUALITY OF LIFE THEY WANT AND ARE WILLING TO PAY FOR.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0134

BELLIS, V. O'CONNER, M.P. RIGGS, S.R. 1975.

ESTUARINE SHORELINE EROSION IN THE ALBEMARLE-PAMLICO REGION OF NORTH CAROLINA.

EAST CAROLINA UNIVERSITY, GREENVILLE, N.C. 76 PP.

SHORELINE EROSION WITHIN THE ESTUARIES OF NORTH CAROLINA IS A CONTINUING PROCESS WHICH HAS BEEN IN OPERATION FOR SEVERAL THOUSAND YEARS. ACTUAL RATES OF EROSION RANGE UP TO TWENTY FEET PER YEAR BUT AVERAGE 2-3 FEET PER YEAR. VARIABLES AFFECTING RATE OF SHORELINE EROSION ARE: BANK HEIGHT AND COMPOSITION, VEGETATIVE COVER, EXPOSURE TO PREVAILING WINDS AND FETCH OFFSHORE TOPOGRAPHY, AND VARIOUS HUMAN ACTIVITIES. THREE MAJOR SHORELINE TYPES ARE IDENTIFIED ON THE BASIS OF THESE PARAMETERS. THESE ARE: (1) SAND AND CLAY BANKS; (2) SWAMP FOREST; AND (3) GRASS MARSH. OF THESE SHORELINE TYPES ONLY THE SAND AND CLAY BANKS CAN BE EASILY DEVELOPED. ALL TYPES, HOWEVER, CAN BE PROTECTED BY SHORELINE MODIFICATION STRUCTURES, USE OF NATURAL PROTECTIVE FEATURES, OR APPROPRIATE SETBACK REGULATION. (MODIFIED AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: REVETMENT, BULKHEAD, GROIN, PROTECT, EROSION, CR 5, CR 6

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REF. NO.-0328

BENEFIELD, R.L. 1976.

SHELL DREDGING SEDIMENTATIONS IN GALVESTON AND SAN ANTONIO BAYS.

TEXAS PARKS AND WILDLIFE DEPT. TECH. SER. NO. 19. 34 PP.

SEDIMENTATION ON OYSTER REEFS CAUSED BY HYDRAULIC MUDSHELL DREDGING WAS STUDIED AT SEVEN SITES IN GALVESTON AND SAN ANTONIO BAYS. SILT BASKETS, CORE TUBES AND OYSTER TONGS WERE USED TO MONITOR RATES OF SEDIMENTATION. IMPORTANT FACTORS IN REEF SEDIMENTATIONS WERE OYSTER REEF CONTOURS, SEDIMENT COMPOSITION, DIRECTION OF CURRENT FLOW AND THE NUMBER OF SHELL DREDGES DISCHARGING SEDIMENTS. NO SEDIMENTATION WAS FOUND ON A REEF RISING 0.91 TO 1.22 M (3 TO 4 FT) ABOVE THE SURROUNDING BOTTOM WHILE A SHELL DREDGE OPERATED 91.4 M (300 FT) FROM THE EDGE. A REEF WITH A FLAT PROFILE RECEIVED DEPOSITS OF DREDGE SEDIMENTS WHEN THE NEAREST OF FIVE DREDGES WAS 1,798 M (5,900 FT) AWAY. SEDIMENT DEPOSITS OF 10.2 TO 15.2 CM (4 TO 6 IN) CAUSED OYSTER MORTALITIES. IT WAS CONCLUDED THAT EACH DREDGING SITE CONTAINED PARTICULAR CHARACTERISTICS AND THAT REGULATIONS PROVIDING INFLEXIBLE MINIMUM DISTANCES BETWEEN DREDGES AND REEFS WERE NOT APPROPRIATE. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: DREDGE/FILL, CR 3, SEDIMENTATION, SHELLFISH

****
REF. NO.-0123

BERG, C.J., JR.   1971.

A REVIEW OF POSSIBLE CAUSES OF MORTALITY OF OYSTER LARVAE OF THE GENUS CRASSOSTREA IN TOMALES BAY, CA.

CALIF. FISH AND GAME, 57(1): 69-75.

OYSTERS OF THE GENUS CRASSOSTREA DO NOT PRODUCE SUCCESSIVE GENERATIONS IN TOMALES BAY, CALIFORNIA BECAUSE OF THE FAILURE OF THE LARVAE TO SURVIVE AND SET. EXCESSIVE TURBIDITIES, LACK OF PROPER FOOD AND BLOOMS OF DINOFLAGELATES ARE PROBABLY THE MAJOR CAUSES OF OYSTER LARVAE MORTALITY, ALTHOUGH THERE ARE OTHER CONTRIBUTING FACTORS.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: HABITAT, SHELLFISH, PRODUCTIVITY, CR 1

****
REF. NO.-0023

BERG, D.W.   1966.

FACTORS AFFECTING BEACH NOURISHMENT REQUIREMENTS AT PRESQUE ISLE PENINSULA, ERIE, PENNSYLVANIA.

U.S. ARMY CORPS OF ENGINEERS. CERC REPRINT NO. 3-66. 10 PP.

ANALYSIS OF AVAILABLE DATA ON PRESQUE ISLE PENINSULA, ERIE, PENNSYLVANIA, INDICATES APPARENT CORRELATION OF INITIAL HIGH EROSION RATES OF PLACED BEACH FILL WITH SAND SIZE CHARACTERISTICS OF THE FILL AND THE MEAN LEVEL OF LAKE ERIE FOR THE PERIOD OVER WHICH MEASURED LOSSES OCCUR. ALTHOUGH EROSION OF THE FILL HAS BEEN MORE THAN ANTICIPATED, THE DATA INDICATE THAT NOURISHMENT REQUIREMENTS FOR REPLENISHING THE BEACHES, SHOULD DECREASE AS THE BEACH PROFILES BECOME READJUSTED THROUGH SELECTIVE SORTING OF THE FILL MATERIAL TO INCIDENT WAVE FORCES REACHING THE PENINSULA. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: EROSION, CR 8

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REF. NO.-0075

BERG, D.W. WATTS, G.M.   1967.

VARIATIONS IN GROIN DESIGN.

JOURNAL OF THE WATERWAYS AND HARBORS DIVISION. PROC. OF THE A.S.C.E. PROC. PAPER 5241. 93(WW2):79-100.

CONSIDERING ALL TYPES OF STRUCTURES USED FOR SHORE PROTECTION PURPOSES, THE GROIN IS PROBABLY

REF. NO.-0075 (CONTINUED)

THE MOST WIDELY USED AND YET IT IS PERHAPS THE ONE STRUCTURE LEAST UNDERSTOOD. GROINS OR GROIN SYSTEMS OF A PARTICULAR DESIGN MAY BE FOUND WHERE THE INTENDED PURPOSE WAS ACHIEVED; HOWEVER, IT IS NOT UNCOMMON TO LEARN OF OTHER CASES WHERE A SIMILAR DESIGN WAS USED AND NEGLIGIBLE BENEFITS RESULTED. BASICALLY, THE FUNCTION OF A GROIN IS TO BUILD OR MAINTAIN A PROTECTIVE BEACH BY TRAPPING LITTORAL DRIFT (BEACH MATERIALS) OR TO RETARD THE EROSION OF AN EXISTING BEACH. A LACK OF UNDERSTANDING OF ALL FACTORS AFFECTING THE FUNCTIONAL AND STRUCTURAL DESIGN OF GROINS HAS LED TO SEEMINGLY ENDLESS VARIATIONS IN GROIN DESIGN. THIS LACK OF UNDERSTANDING IS DIRECTLY RELATED TO THE PAUCITY OF ESTABLISHED THEORETICAL OR EMPIRICAL RELATIONSHIPS BETWEEN THE FUNCTIONAL BEHAVIOR OF GROINS AND THE ENVIRONMENTAL FACTORS IN WHICH THE STRUCTURES MUST EXIST. THE PURPOSE OF THIS PRESENTATION IS TO POINT OUT PERTINENT FEATURES OF BASIC TYPES OF GROINS AND TO ILLUSTRATE SOME OF THE MANY VARIATIONS WHICH HAVE BEEN BUILT IN THE UNITED STATES.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: GROIN, PROTECT, TRAINING, EROSION, LITTORAL PROCESSES

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REF. NO.-0237

BERG, D.W. WATTS, G.M. 1971.

GROINS AND GROIN SYSTEMS: A REVIEW OF RESEARCH.

SHORE AND BEACH 39(2):34-36.

SUMMARIZATION OF THE COASTAL ENGINEERING RESEARCH CENTER'S STUDY ON GROINS AS APPLIED TO SHORE STABILIZATION. COMPLETED STUDIES HAVE BEEN PUBLISHED FOR LOCATIONS IN CT,FL, MD, MS, AND NJ. PRESENT FIELD STUDIES INCLUDE LOCATIONS IN CA, CT, FL, NH, NY, PA, AND SC. LABORATORY STUDIES ARE ALSO BEING CONDUCTED. THE OBJECTIVES OF THE FIELD STUDIES VARY, HOWEVER, ALL ARE CONCERNED WITH THE FUNCTIONAL BEHAVIOR OF GROINS. A REVIEW OF PUBLISHED LITERATURE OF GROINS IS BEING CONDUCTED AT CERC WITH THE INTENT OF PRODUCING AN ANNOTATED BIBLIOGRAPHY. THIS REVIEW, TO DATE SUBSTANTIATES THE NEED FOR QUANTITATIVE DATA TO IMPROVE CRITERIA FOR THE FUNCTIONAL AND STRUCTURAL DESIGN OF GROINS. AN EXPERIMENTAL STRUCTURE 680 FEET LONG HAS BEEN CONSTRUCTED THAT CAN BE ALTERED TO YIELD VARIOUS GROIN DIMENSIONS AND CONFIGURATIONS BY INSERTION OF PRESTRESSED CONCRETE PANELS IN THE BASIC STRUCTURE. DETAILED INFORMATION IS BEING COLLECTED ON LITTORAL ENVIRONMENT OF THE AREA, AND ALL BASIC IMPERMEABLE AND PERMEABLE CONFIGURATIONS WILL BE EXAMINED.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: GROIN, PROTECT, LITTORAL PROCESSES, CR 2, RESEARCH NEEDS

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REF. NO.-0293

BERG, D.W. DUANE, D.B. 1968.

REF. NO.-0293 (CONTINUED)

EFFECT OF PARTICLE SIZE AND DISTRIBUTION ON STABILITY OF ARTIFICIALLY FILLED PRESQUE ISLE PENINSULA, PENNSYLVANIA.

PROC. 11TH CONF. GREAT LAKES RES. INTERNAT. ASSOC. GREAT LAKES RES. PP. 161-178.

PRESQUE ISLE PENINSULA, A SANDY SPIT ON THE SOUTH SHORE OF LAKE ERIE HAS EXPERIENCED CONTINUED EROSION OF ITS LAKESIDE SHORE LINE SINCE THE FIRST ATTEMPTS TO STABILIZE AND HALT ITS NATURAL EASTWARD MIGRATION. FOR NEARLY 150 YEARS NUMEROUS STRUCTURES HAVE BEEN BUILT ON ITS SHORELINE IN ATTEMPTS TO SLOW DOWN OR HALT THE DETERIORATION AND MIGRATION OF THE PENINSULA AND CONSEQUENT LOSS OF VALUABLE LAND. IN 1965 APPROXIMATELY 1.27 X 10(4) M(3) OF SAND FILL COARSER THAN FILL PREVIOUSLY USED AS WELL AS COARSER THAN THAT WHICH NATURALLY EXISTED ON THE PENINSULA, WAS PLACED ON A SECTION OF THE BEACH; SUBSEQUENTLY ANNUAL DATA COLLECTION SURVEYS WERE MADE IN THE FILL AREA AND ADJACENT PARTS OF THE PENINSULA. ANALYSIS OF THE DATA INDICATE THE TEST AREA INVOLVING COARSE SAND FILL HAS UNDERGONE MINIMAL MATERIAL LOSS AND MAINTAINED A RELATIVELY STABLE PROFILE. ON THE BASIS OF THIS EXPERIMENT IT IS JUDGED THAT DEFINITE SHORE STABILIZATION OCCURS, WITH ATTENDANT BENEFITS SUCH AS SUBSTANTIALLY REDUCED NOURISHMENT REQUIREMENTS, FROM THE UTILIZATION OF SAND FILL THAT HAS SIZE CHARACTERISTICS SUPERIOR TO THAT ORIGINALLY FOUND ON AN ERODING BEACH. (AUTHOR ABSTRACT)

NATURE OF REFFRENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: GROIN, PROTECT, STABILIZE, CR 8, EROSION

****
REF. NO.-0511

BIRD, E.C.F. 1971.

MANGROVES AS LAND-BUILDERS.

VICTORIA NAT. 88(7):189-197.

MANGROVES ARE SHRUBS AND TREES THAT GROW ON THE TIDAL SHORES OF ESTUARIES, INLETS AND EMBAYMENTS, IN SECTORS PROTECTED FROM STRONG WAVE OR CURRENT ACTION. MANGROVES ACT AS LAND-BUILDERS ON TIDAL SHORES WHEN THEY TRAP SEDIMENT AND BUILD UP DEPOSITIONAL TERRAIN THAT WOULD OTHERWISE NOT HAVE DEVELOPED. MANGROVES CANNOT DIRECTLY CAUSE SHORELINE ADVANCE SINCE THEY SPREAD FORWARD ONLY AFTER THE ADJACENT MUDFLATS HAVE BEEN BUILT UP BY VERTICAL ACCRETION TO A SUITABLE LEVEL. BY SHELTERING THE NEARSHORE ZONE AT HIGH TIDE FROM THE EFFECTS OF OFFSHORE WINDS THEY MAY NEVERTHELESS FACILITATE THE VERTICAL ACCRETION WHICH WILL PERMIT THEIR ADVANCE. ONCE ESTABLISHED, MANGROVES GRADUALLY CONFINE THE EBB AND FLOW OF TIDES TO RESIDUAL TIDAL CREEK SYSTEMS

NATURE OF REFFRENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: STABILIZE, AQUATIC PLANTS, SUCCESSION

****
REF. NO.-0303

BLUME, J.A. KEITH, J.M. 1959.

RINCON OFFSHORE ISLAND AND OPEN CAUSEWAY.

JOURNAL OF THE WATERWAYS AND HARBORS DIVISION. A.S.C.E. WW3:61-92.

THIS PAPER PRESENTS THE DESIGN PROBLEMS AND THE CONSTRUCTION TECHNIQUES INVOLVED IN CREATING A MANMADE ISLAND OF SAND, ROCK AND PRECAST CONCRETE ARMOR IN THE PACIFIC OCEAN OFF SHORE FROM CALIFORNIA. THIS OIL PRODUCTION ISLAND WITH THE OPEN CAUSEWAY WHICH CONNECTS IT TO THE SHORELINE CONSTITUES ONE OF THE MOST UNIQUE MARINE INSTALLATIONS IN THE WORLD. THE DESIGN INCLUDED MANY ALTERNATE ECONOMIC STUDIES, MODEL TESTS IN A WAVE LABORATORY, AND STORM DAMAGE AND WAVE RUNUP STUDIES WITH ALTERNATE ARMOR TYPES, MATERIALS, AND SLOPES. THE FIELD OPERATIONS INCLUDED SKIN DIVING AND THE USE OF SPECIAL FATHOMETERS IN CONTROL OPERATIONS FOR UNDERWATER PLACEMENT. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0414

BOBERSCHMIDT, L. CARSTEA, D. HOLBERGER, R. SAARI, S. 1976.

CONSIDERATIONS FOR THE ENVIRONMENTAL IMPACT ASSESSMENT OF SMALL STRUCTURES AND RELATED ACTIVITIES AS APPLIED TO THE CHICAGO DISTRICT, U.S. ARMY CORPS OF ENGINEERS.

2 VOLS. THE MITRE CORP., MCLEAN, VA. PAGING VARIOUS.

THIS DOCUMENT DESCRIBES THE GUIDELINES DEVELOPED FOR THE U.S. ARMY CORPS OF ENGINEERS, CHICAGO DISTRICT, FOR USE IN DESCRIBING THE PROBABLE ENVIRONMENTAL IMPACTS (PHYSICAL, BIOLOGICAL AND SOCIOLCONOMIC) OF REPRESENTATIVE STRUCTURES AND COMMON ACTIVITIES PERFORMED IN THE DISTRICT. GENERIC ENVIRONMENTAL ANALYSES ARE MADE WITH RESPECT TO THE FOLLOWING ACTIONS: PIER, RIPRAP, DREDGING, BULKHEAD, SUBMERGED STRUCTURE, OUTFALL, AERIAL CROSSING, AND BOAT RAMP. THE GUIDELINES ALLOW FOR AN EFFECTIVE AND RAPID ENVIRONMENTAL ASSESSMENT OF SPECIFIC PERMIT APPLICATIONS DURING THE REVIEW PROCESS OF SUCH APPLICATIONS.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: PIER, BULKHEAD, REVETMENT, RAMP, PROTECT, MOORING, LAUNCH, PRODUCTIVITY, HABITAT, CR 8

****
REF. NO.-0273

BOURN, W.S. COTTAM, C. 1950.

SOME BIOLOGICAL EFFECTS OF DITCHING TIDEWATER MARSHES.

REF. NO.-0273 (CONTINUED)

FISH AND WILDLIFE SERV. RES. REP. 19. U.S. GOVERNMENT PRINTING OFFICE. 16 PP. AND FIGURES.

STUDIES CONDUCTED OVER A TWELVE-YEAR PERIOD (1935-47) OF THE BIOLOGICAL EFFECTS OF DITCHING TIDEWATER MARSHES IN DELAWARE FOR MOSQUITO CONTROL SHOWED MARKED ECOLOGICAL CHANGES IN THE FLORAL COVER AND INVERTEBRATE FAUNA FOLLOWING SUCH OPERATIONS. THESE STUDIES REVEALED THAT SYSTEMATIC DITCHING, WHICH HAS PROVED USELESS AS A PERMANENT MOSQUITO-CONTROL MEASURE, RESULTED IN SHRUBBY GROWTHS SUCCEEDING THE MARSHES' NATURAL VEGETATION AND GREATLY REDUCED THE INVERTEBRATE POPULATIONS SO IMPORTANT AS WATERFOWL FOOD. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: LAND PLANTS, HABITAT, BIRDS, INVERTEBRATES, SHELLFISH, PRODUCTIVITY, SUCCESSION, CR 6

****
REF. NO.-0100

BOWERMAN, F.R. CHEN, K.Y. 1971.

MARINA DEL RAY: A STUDY OF ENVIRONMENTAL VARIABLES IN A SEMI-ENCLOSED COASTAL WATER.

UNIV. SOUTHERN CA., LOS ANGELES. SEA GRANT PUBLICATION NO. USC-SG-4-71. 59 PP.

THE MARINA DEL RAY BOAT HARBOR WAS OPENED TO THE PUBLIC IN 1962. SINCE THEN, NO EXTENSIVE STUDY HAS BEEN PERFORMED ON THE WATER QUALITY OF ITS CHANNELS. ANTICIPATED POPULATION GROWTH IN THE AREA AND THE EVER GROWING NUMBER OF SMALL CRAFT USING THE CHANNELS PRECIPITATED THE NEED TO ESTIMATE THE QUANTITATIVE CHANGES IN WATER QUALITY. CHLORINATED HYDROCARBONS, TEMPERATURE, SALINITY, PH, CLARITY, DEPTH, DISSOLVED OXYGEN, HEAVY METALS, PESTICIDES, BOTTOM SEDIMENT COMPOSITION, BENTHIC ORGANISMS AND STORM WATER ANALYSIS WERE TESTED OVER THE WORKING PERIOD OF OCTOBER 1970 TO SEPTEMBER 1971. CURRENT ENVIRONMENTAL CONDITIONS OF THE MARINA AND POTENTIAL SOURCES OF CONTAMINATION WERE INVESTIGATED.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: HARBOR, CR 2, HABITAT

****
REF. NO.-0506

BOWLEY, W.W. 1974.

A WAVE BARRIER CONCEPT.

PP. 91-112 IN: PROC. FLOATING BREAKWATERS CONFERENCE, NEWPORT, RI. TECH. SER. NO. 24. (Q.V. KOWALSKI, 1974A).

THIS PAPER TRACES THE DESIGN DEVELOPMENT AND SUBSEQUENT EXPERIMENTAL VERIFICATION OF THE

REF. NO.-0506 (CONTINUED)

BOWLEY WAVE BARRIER. THE WAVE BARRIER CONSISTS OF MODULAR UNITS WHICH CAN BE SET INTO VARIOUS ARRAYS TO FORM A SUBSTANTIAL SYSTEM CAPABLE OF ATTENUATING WAVES OF VARYING HEIGHTS AND LENGTHS. SUFFICIENT DATA IS PRESENTED TO SUBSTANTIATE THE FLEXIBILITY OF THE SYSTEM AS WELL AS THE RESULTANT PERFORMANCE IN TERMS OF THE TRANSMISSION COEFFICIENT. THE WORK ACCOMPLISHED TO DATE SEEMS TO INDICATE A VERY STRONG NEED FOR ESTABLISHING A FIGURE OF MERIT THAT IS OF SUFFICIENT GENERALITY TO ALLOW AN EVALUATION OF THE NUMEROUS FLOATING BREAKWATERS EXISTING AND CONTEMPLATED. THERE IS ALSO A NEED FOR A SITE ENGINEERING COMPUTER PROGRAM WHICH WILL ALLOW THEORETICAL EMPLACEMENT EVALUATIONS TO BE MADE WITHOUT THE NEED FOR COSTLY ENACTMENT ON A FULL SCALE. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0122

BRATER, E.F. ARMSTRONG, J.M. MCGILL, M. 1974.

MICHIGAN'S DEMONSTRATION EROSION CONTROL PROGRAM, EVALUATION REPORT.

THE MICHIGAN DEPARTMENT OF NATURAL RESOURCES. 99 PP.

THIS DOCUMENT IS A STATUS REPORT ON A NUMBER OF DEMONSTRATION SHORELINE PROTECTION PROJECTS ALONG MICHIGAN'S GREAT LAKES SHORELINE. THE STUDY WAS CONDUCTED AS A SERVICE TO SHORELINE PROPERTY OWNERS TO PROVIDE THEM WITH INFORMATION ON THE MOST EFFECTIVE AND LEAST COSTLY INSTALLATION FOR PROTECTION OF PARTICULAR SHORELINE TYPES. THE NATURE OF EACH INSTALLATION, SITE, COSTS, CONSTRUCTION PROBLEMS, AND INFORMATION ABOUT AND EVALUATION OF PERFORMANCE IS GIVEN. SHORE EROSION PROCESSES ARE DESCRIBED AND VARIOUS METHODS OF REDUCING EROSION DAMAGE ARE PRESENTED. A PARTICULAR EFFORT WAS MADE TO FIND REASONABLY EFFECTIVE METHODS WHICH COULD BE CONSTRUCTED BY THE PROPERTY OWNERS THEMSELVES. A GREAT DEAL OF VALUABLE INFORMATION WAS OBTAINED REGARDING CONSTRUCTION COSTS OF A LARGE VARIETY OF MATERIALS. HOWEVER, TOTAL EFFECTIVENESS OF THE INSTALLATIONS CANNOT BE JUDGED UNTIL AFTER A NUMBER OF YEARS.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: REVETMENT, GROIN, BREAKWATER, BULKHEAD, PROTECT, CR 8, EROSION

****
REF. NO.-0129

BRATER, E.F. 1954.

LOW COST SHORE PROTECTION USED ON THE GREAT LAKES.

PROC 4TH CONF. ON COASTAL ENG. PP 214-2269.

THE RESULTS OF THREE YEARS OF FIELD OBSERVATIONS ON LOW COST BEACH PROTECTION STRUCTURES IN

REF. NO.-0129 (CONTINUED)

USE ON THE GREAT LAKES ARE PRESENTED. THE STRUCTURES WERE STUDIED IN REGARD TO THEIR EFFECTIVENESS AS BEACH BUILDING AND PROTECTIVE DEVICES AND WITH RESPECT TO THEIR DURABILITY IN IN RESISTING ICE AND WAVE FORCES. THE TERM LOW COST REFERS TO STRUCTURES WHICH COST $10-$30 PER FOOT OF FRONTAGE AT 1952 PRICES. (MODIFIED AUTHOR ABSTRACT)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: REVETMENT, GROIN, BULKHEAD, EROSION, CR 8, PROTECT

****
REF. NO.-0407

BRATER, E.F. SEIBEL, E. 1973.

AN ENGINEERING STUDY OF GREAT LAKES SHORE EROSION IN THE LOWER PENINSULA OF MICHIGAN.

MICHIGAN WATER RESOURCES COMMISSION, DEPT. OF NATURAL RESOURCES. 47 PP.

A STUDY WAS CONDUCTED TO DETERMINE THE SEVERITY OF EROSION AND THE RATE OF BLUFF RECESSION AT SELECTED SITES ON LAKE MICHIGAN AND LAKE HURON. CAUSES OF EROSION AND RECOMMENDATIONS FOR SHORE PROTECTION WERE ALSO PRESENTED. EACH SITE WAS VISITED 3 TIMES AND AERIAL PHOTOGRAPHS WERE USED IN THE STUDY. LACK OF PLANNING OR ZONING, EFFECTS OF POLITICAL AND PERSONAL CONFLICT, AND COSTS OF CONSTRUCTING PROTECTIVE STRUCTURES ARE MENTIONED.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: CR 8, GROIN, EROSION, PROTECT

****
REF. NO.-0487

BRATER, E.F. ARMSTRONG, J.M. MCGILL, M. 1975.

MICHIGAN'S DEMONSTRATION EROSION CONTROL PROGRAM UPDATE EVALUATION REPORT-AUGUST, 1975.

MICHIGAN DEPT. NATL. RES. 53 PP.

THIS REPORT SERVES AS AN UPDATE TO PREVIOUSLY PUBLISHED REPORTS ON MICHIGANS DEMONSTRATION EROSION CONTROL PROGRAM (Q.V.) IT CONTAINS A FAIRLY COMPLETE ANALYSIS OF STRUCTURAL PERFORMANCE FOR A NUMBER OF STRUCTURES ALONG MICHIGANS SHORELINE. THESE ANALYSIS INCLUDE: 1) DESCRIPTION OF CONDITIONS OF STRUCTURES, INCLUDING PHOTOGRAPHS, IN LATE 1974 OR EARLY 1975 AND ENGINEERING DRAWINGS; 2) AN ANALYSIS OF THE STRUCTURES FAILURE IF IT OCCURRED; 3) AN EXPLANATION OF AMOUNT AND TYPE OF MAINTENANCE REQUIRED FOR EACH; 4) DESCRIPTION OF DESIGN MODIFICATIONS REQUIRED TO INCREASE EACH STRUCTURE TYPES EFFECTIVENESS; 5) GENERAL OBSERVATIONS AND CONCLUSIONS ABOUT THE STRUCTURE

NATURE OF REFERENCE: GENERAL

REF. NO.-0487 (CONTINUED)

TYPE OF REFERENCE: PUB

DESCRIPTORS: REVETMENT, BULKHEAD, GROIN, BREAKWATER, CR 8, ECONOMICS

****
REF. NO.-0489

BRATER, E.F. 1950.

BEACH EROSION IN MICHIGAN.

ENGINEERING RESEARCH INSTITUTE. UNIVERSITY OF MICHIGAN, ANN ARBOR. 39 PP.

BEACH EROSION PROCESSES ON MICHIGAN'S SHORELINES ARE DISCUSSED. A BACKGROUND OF BEACH EROSION STUDIES AND PROTECTIVE AND REMEDIAL MEASURES ARE PRESENTED.

NATURE OF REFERENCE: ENG

TYPE OF REFERFNCE: UNPUB

DESCRIPTORS: BULKHEAD, REVETMENT, GROIN, CR 8, PROTECT, EROSION

****
REF. NO.-0493

BRATER, E.F. ARMSTRONG, J.M. MCGILL, M.R. HYMA, N.D. 1977.

THE MICHIGAN DEMONSTRATION EROSION CONTROL PROGRAM IN 1976.

MICH. SEA GRANT PROGRAM TECH. REPT. NO. 55. MICHU-SG-77-200. 71 PP.

THIS REPORT SUMMARIZES NEW DATA GATHERED DURING 1975-76 FOR THE LONG TERM OBJECTIVE OF PROVIDING ASSISTANCE IN THE SELECTION AND DESIGN OF ECONOMICALLY FEASIBLE LOW-COST SHORE PROTECTION. EXPERIMENTAL REVETMENTS, SEAWALLS, GROINS, AND BREAKWATERS IN VARIOUS MICHIGAN LOCATIONS ARE REVIEWED FOR EFFECTIVENESS. A LABORATORY PROGRAM WAS DEVELOPED TO SUPPLEMENT INFORMATION GATHERED FROM THE MONITORING OF THE FIELD INSTALLATIONS.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: CR 8, REVETMENT, BREAKWATER, BULKHEAD, GROIN, PROTECT

****
REF. NO.-0045

BRETSCHNEIDER, C. 1971.

COASTAL ENGINEERING PRACTICES.

IN IMPINGEMENT OF MAN ON THE OCEANS. D. W. HOOD, ED. WILEY - INTERSCIENCE, NEW YORK.

REF. NO.-0045 (CONTINUED)

THE NATURAL SOURCE OF BEACH SAND AND MATERIALS IS THE LAND THAT IS BEING ERODED BY NATURAL MEANS. MAN-MADE STRUCTURES BUILT FOR RECLAMATION, FLOOD CONTROL, HYDROELECTRIC POWER PLANTS, OR OTHER PURPOSES WILL TEND TO DISRUPT THE NORMAL EQUILIBRIUM BALANCE. CONTROLLED PEAK DISCHARGES FROM FLOOD CONTROL AND RECLAMATION PROJECTS SHOULD BE MADE AT REASONABLE INTERVALS OF TIME TO PROVIDE FOR THE TRANSPORT OF THE IMPOUNDED SANDS AND SEDIMENTS TO THE SEA. LONGSHORE TRANSPORT OF MATERIALS IS NORMAL AND WHEN INTERRUPTED BY MAN PROVISION SHOULD BE MADE TO TRANSPORT SAND AROUND THESE OSBTACLES.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

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REF. NO.-0128

BRIGGS, P.T. O'CONNOR, J.S. 1971.

COMPARISON OF SHORE-ZONE FISHES OVER NATURALLY VEGETATED AND SAND-FILLED BOTTOMS IN GREAT SOUTH BAY.

N.Y. FISH AND GAME. 18(4):15-41.

BETWEEN MAY 1967 AND NOVEMBER 1968, A TOTAL OF 310 SEINE HAULS WERE MADE AT PAIRED STATIONS, REPRESENTING NATURALLY VEGETATED BOTTOMS AND SAND-FILLED BOTTOMS, AT THREE SITES IN GREAT SOUTH BAY ON LONG ISLAND. COLLECTED FISH WERE COUNTED, MEASURED AND WEIGHED TO COMPARE SPECIES COMPOSITION OVER THE TWO TYPES OF BOTTOM. ALL SAND-FILLED BOTTOMS WERE CREATED BY THE DEPOSITION OF SPOIL FROM DREDGING OPERATIONS. MOST OF THE NON-TEMPORAL VARIABILITY IN SPECIES COMPOSITION COULD BE ATTRIBUTED TO DIFFERENCES BETWEEN THE BOTTOM TYPES. OF 40 FISH SPECIES RECORDED, 23 CLEARLY PREFERRED ONE BOTTOM TYPE OVER THE OTHER. MOST SPECIES PREFERRED THE NATURALLY VEGETATED BOTTOMS. (AUTHOR ABSTRACT)

NATURE OF REFFRENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: CR 7, SUBSTRATE, FISH

****
REF. NO.-0408

BRISBY, W.L. 1977.

MARINE ORGANISMS ON RIPRAP AT RINCON ISLAND, CALIFORNIA.

DEPT. MARINE BIOLOGY, MOORPARK COLLEGE, MOORPARK, CA. PERS. COMM.

A NUMBER OF YEARS OF OBSERVATION DURING AND AFTER CONSTRUCTION OF RINCON ISLAND, SANTA BARBARA CHANNEL, CALIFORNIA, HAVE SHOWN THAT THE RIPRAP SIDES OF THE ISLAND PROVIDE A GOOD HABITAT FOR SESSILE MARINE ORGANISMS AND THE ORGANISMS THAT GRAZE THEM. NO ADVERSE EFFECTS ARE APPARENT

REF. NO.-0408 (CONTINUED)

FROM THE EXISTENCE OF THE CAUSEWAY TO THE ISLAND. SILT IN THE WATER AND IN A THIN LAYER ON THE LOWER PARTS OF THE ISLAND BASE DOES RESTRICT IT AS A HABITAT, BUT IN GENERAL THE ISLAND HAS PROVED TO BE A NEW HABITAT. DAMES AND MOORE ARE CURRENTLY DOING A STUDY ON THE BIOTA OF RINCON ISLAND FOR THE U.S. ARMY CORPS OF ENGINEERS (CERC).

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: INT

DESCRIPTORS: REVETMENT, PROTECT, CR 2, SUBSTRATE, HABITAT, SUCCESSION, CAUSEWAY

****
REF. NO.-0438

BRITISH COLUMBIA MINISTRY OF ENVIRONMENT. 1976.

LADYSMITH HARBOUR: A GUIDE FOR ENVIRONMENTAL MANAGEMENT OF FORESHORE RESOURCES.

BRITISH COLUMBIA LANDS SERVICE, LAND MANAGEMENT BRANCH. 97 PP.

THIS REPORT IS A GUIDE TO THE ENVIRONMENTAL MANAGEMENT OF AN INTENSIVELY USED SMALL HARBOR ON SOUTHEASTERN VANCOUVER ISLAND. IT PROVIDES THE BASIS FOR THE PLANNING OF FORESHORE USE BY A VARIETY OF INTERESTS OPERATING WITHIN LADYSMITH HARBOR. THESE GUIDELINES INCLUDE A PHYSICAL AND BIOLOGICAL DESCRIPTION OF THE AREA, CURRENT LAND USE PRACTICES, LAND USE CONFLICTS, AND LAND USE RECOMMENDATIONS. ENVIRONMENTAL DEGRADATION IN LADYSMITH HARBOR IS ATTRIBUTED TO THE LOGGING INDUSTRY, SEWAGE OUTFALL, AND BOATING ACTIVITY.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0262

BROWN, G.M. POLLAKOWSKI, H.O. 1975.

THE ECONOMIC VALUE OF UNDEVELOPED SHORELINE.

DEPT. OF ECONOMICS UNIVERSITY OF WASHINGTON. USDI/OWRR PROJECT COMPLETION REPORT. 22 PP.

PROPERTY VALUES IN FIVE AREAS OF SEATTLE LOCATED NEAR LAKE FRONTAGE WERE SAMPLED. THE AREAS DIFFERED IN THE AMOUNT OF UNDEVELOPED LAND OR OPEN ACCESS AROUND THE LAKE, WHICH WAS DEFINED AS SETBACK. THROUGH APPLICATION OF ORDINARY LEAST SQUARES REGRESSION TECHNIQUES, THE RELATIONSHIP WAS ESTIMATED BETWEEN PROPERTY VALUES AND (1) NEIGHBORHOOD VARIABLES SUCH AS POPULATION DENSITY; (2) LOCATION VARIABLES SUCH AS DISTANCE TO DOWNTOWN OR TO JOB CENTERS; (3) HOUSE AND LOT VARIABLES SUCH AS LIVING AREA, NUMBER OF ROOMS, VIEW, NUMBER OF FIREPLACES, NUMBER OF BATHROOMS, AND (4) DISTANCE TO WATER AND AMOUNT OF SETBACK. OTHER THINGS EQUAL, THE VALUE OF PROPERTY FALLS AS THE DISTANCE FROM WATER INCREASES. THE VALUE OF PROPERTY INCREASES AS THE AMOUNT OF SETBACK INCREASES, BUT AT A DECREASING RATE. THESE RESULTS PERMITTED THE

REF. NO.-0262 (CONTINUED)

DETERMINATION OF ESTIMATES OF OPTIMAL SETBACK AND THE NET BENEFITS OF SETBACK.
(AUTHOR ABSTRACT)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: GOV REP

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0081

BRUUN, P. PURPURA, J.A. 1965.

EMERGENCY METHODS TO COMBAT BEACH EROSION.

DOCK AND HARBOUR AUTHORITY. 45:391-396.

THIS ARTICLE PROVIDES CERTAIN ADVICE FOR EMERGENCY MAINTENANCE OF VARIOUS SHORELINE STRUCTURES. DAMAGE TO SEAWALLS AND REVETMENTS, UNDERCUT BULKHEADS, EXCESSIVE SCOURING FROM GROINS ARE CONSIDERED. PROPER USE OF HEAVY EARTH-MOVING EQUIPMENT IS ALSO DISCUSSED.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: EROSION, GROIN, REVETMENT, BULKHEAD

****
REF. NO.-0173

BRUUN, P. MANOHAR, M. 1963.

COASTAL PROTECTION FOR FLORIDA DEVELOPMENT AND DESIGN.

FLORIDA ENG. AND INDUSTRIAL EXPERIMENT STATION. COLLEGE OF ENG., UNIV. OF FLORIDA, GAINESVILLE. BULL. NO. 113. 56 PP.

CONSIDERING THE 1300 MILES OF FLORIDA TIDAL SHORELINE AN ATTEMPT IS MADE TO SURVEY THE CONDITION, STRUCTURES FOR COASTAL PROTECTION AND THE ADVANTAGES AND DISADVANTAGES OF EACH. DISCUSSED ARE PERMEABLE AND IMPERMEABLE GROINS, JETTIES, BULKHEADS (SEAWALLS), REVETMENTS AND BREAKWATERS. ARTIFICIAL BEACH NOURISHMENT IS ALSO INCLUDED. EROSION AND LITTORAL DRIFT OCCUPIES A LARGE PORTION OF THE DISCUSSION, WHICH IN FLORIDA, WITH 800 MILES OF SANDY BEACHES IS VERY IMPORTANT. GROIN SPACING RATIO GUIDELINES, SLOPE REQUIREMENTS FOR SEAWALLS, ADVANTAGES OF PERMEABLE AND IMPERMEABLE STRAUCTURES, AS WELL AS ADJUSTABLE AND NONADJUSTABLE STRUCTURES ARE DISCUSSED. AN APPENDIX ON COASTAL PROTECTION IN THE NETHERLANDS IS ALSO INCLUDED.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

REF. NO.-0173 (CONTINUED)

DESCRIPTORS: EROSION, GROIN, BULKHEAD, BREAKWATER, LITTORAL PROCESSES, PROTECT, TRAINING, STABILIZE, CR 4, JETTY, CR 3, CR 5

****
REF. NO.-0454

BRUUN, P. 1964.

REVETMENTS FOR COASTAL PROTECTION: REVIEW OF SOME DIFFERENT TYPES.

DOCK AND HARBOR AUTHORITY PP. 320-322.

REVETMENT STRUCTURES ARE REVIEWED IN GENERAL AND COMPARED BRIEFLY TO BULKHEADS IN TERMS OF EFFECTIVENESS. DIFFERENT DESIGNS ARE ILLUSTRATED AND DESIGN CRITERIA OUTLINED.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: REVETMENT, BULKHEAD, PROTECT

****
REF. NO.-0474

BRUUN, P. 1960.

ENGINEERING ASPECTS OF SEDIMENT TRANSPORT.

COASTAL ENGINEERING LAB,UNIV. OF FLORIDA, GAINESVILLE. 101 PP. + APPENDICES.

THIS PAPER GIVES A BRIEF SUMMARY OF ENGINEERING ASPECTS IN SEDIMENTS TRANSPORT BASED ON PRESENT (UP TO 1960) KNOWLEDGE. IT INCLUDES PARAGRAPHS ON SEDIMENT TRANSPORT IN RIVERS, STABLE CHANNELS IN ALLUVIAL MATERIAL, SEDIMENT TRANSPORT ON SEA SHORES AND ITS IMPORTANCE IN THE DESIGN OF HARBOR AND COASTAL PROTECTION WORKS OF COASTAL INLETS. FURTHERMORE IT MENTIONS TRACING OF SEDIMENT TRANSPORT WITH SPECIAL REFERENCE TO THE RECENT DEVELOPMENT OF RADIOACTIVE TRACERS. THE LAST SECTION COVERS THE PRINCIPAL PLANT AND ANIMAL GROUPS WHICH HAVE SOME EFFECT ON SEDIMENT TRANSPORT. SUCH TRANSPORT IS BRIEFLY DISCUSSED FROM THE ASPECT OF WHAT ORGANISMS AID IT, AND HOW, AND WHICH ONES IMPEDE IT. GENERALLY ONLY BROAD ASPECTS OF MARINE TRANSPORT ARE MENTIONED AND IT HAS BEEN NOTED THAT SOME OF THESE SAME FACTORS ARE PRESENT IN FRESH WATERS.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: UNPUB

DESCRIPTORS: CR 5, LITTORAL PROCESSES, PROTECT, BENTHOS, AQUATIC PLANTS

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REF. NO.-0480

BRUUN, P. 1955.

REF. NO.-0480 (CONTINUED)

COASTAL DEVELOPMENT AND COASTAL PROTECTION.

FLORIDA ENGIN. AND INDUST. EXP. STN., GAINESVILLE. BULL. SER. NO. 76. 30 PP.

AN ATTEMPT IS MADE TO EXPLAIN THE CONNECTION BETWEEN COASTAL DEVELOPMENT AND COASTAL PROTECTION. FLORIDA HAS TWO PROBLEMS-THE SEA, AND PROPERTY OWNERS AT THE SEASHORE WHO VERY OFTEN BUILD HOMES SO CLOSE TO THE SHORELINE SO AS TO BE DESTROYED BY WAVES. THE PROBLEMS INVOLVED IN BEACH EROSION CAN BE EXPLAINED BY THE TERMS 'SOURCE' (COASTAL AREA WHICH DELIVERS MATERIALS TO OTHER BEACHES) AND 'DRAIN' (COASTAL AREA WHERE MATERIALS ARE DEPOSITED). IN DISCUSSING BEACH EROSION, ONE MUST DISTINGUISH BETWEEN NATURAL EROSION AND THAT CAUSED BY MANMADE STRUCTURES. ONE SECTION IS A REVIEW OF METHODS FOR DEFENSE WITH SPECIAL REFERENCE TO GROINS, SEAWALLS, AND ARTIFICIAL NOURISHMENT. ANOTHER MENTIONS DEVELOPMENT OF COASTAL PROTECTION FOR CONDITIONS IN FLORIDA. BEFORE PLANS ARE PREPARED FOR COASTAL PROTECTION, INVESTIGATIONS SHOULD BE CARRIED OUT IN A COASTAL ENGINEERING LABORATORY. (MODIFIED AUTHOR ABSTRACT)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0167

BUCHANAN, C.C. 1973.

EFFECTS ON AN ARTIFICIAL HABITAT ON THE MARINE SPORT FISHERY AND ECONOMY OF MORRELLS INLET, SOUTH CAROLINA.

MARINE FISHERIES REVIEW 35(9):15-22.

PARADISE ARTIFICIAL REEF IN THE ATLANTIC OCEAN 3 MILES FROM MURRELLS INLET, S.C., RECEIVED 35 PERCENT OF THE ANGLER-HOURS EXPANDED IN THE OCEAN SPORT FISHERY OF THE AREA AND YIELDED OVER 40 PERCENT OF THE CATCH. THE SURVEY ESTIMATED 1,905 BOAT-DAYS OF OCEAN SPORT FISHING FROM JUNE THROUGH SEPT., CATCH PER ANGLER-HOUR AND THE SPECIES COMPOSITION OF CATCHES WHILE BOTTOM FISHING ON THE ARTIFICIAL REEF WERE ABOUT THE SAME AS THOSE OVER NATURAL ROCK REEFS. ANGLER SUCCESS FOR PELAGIC FISHES ON THE REEF WAS SIMILAR TO THAT OVER NATURAL HABITATS. THE ARTIFICIAL REEF WAS RESPONSIBLE FOR AN INCREASE OF 16 PERCENT IN THE NUMBER OF PRIVATE BOAT ANGLERS IN THE OCEAN SPORT FISHERY AND FOR AN INCREASE OF NEARLY 10 PERCENT IN THE GROSS ECONOMIC IMPACT OF OCEAN SPORT FISHING ON THE SURROUNDING COMMUNITIES. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: RECREATION, ECONOMICS, FISH, PRODUCTIVITY, CR 5, REEF, HABITAT

****
REF. NO.-0179

BUDDECKE, R. 1973.

REF. NO.-0179 (CONTINUED)

HELP YOURSELF-A DISCUSSION OF THE CRITICAL EROSION PROBLEMS ON THE GREAT LAKES.

SHORE AND BEACH 41(2):15-17.

SHORE EROSION IS A MAJOR WATER RESOURCE PROBLEM ON THE GREAT LAKES. HIGH LAKE LEVELS HAVE SUBMERGED NATURAL BEACHES THAT PROTECT THE HIGHLY ERODIBLE SHORE UPLANDS FROM STORM INDUCED WAVE ACTION. RAISED ABOVE THE BEACHES, STORM INDUCED WAVE ACTION IS ABLE TO ATTACK THE TOE OF ERODIBLE BLUFFS AND DUNES DIRECTLY, RESULTING IN RAPID LANDWARD MOVEMENT OF THE SHORE. THE MAIN METHOD FOR REDUCING FUTURE SHORE DAMAGE IS LAND MANAGEMENT. THERE IS A GREAT NEED FOR THE TECHNICAL DATA ON WHICH TO BASE ZONING CONCEPTS. A COORDINATED PROGRAM DOES NOT EXIST IN THE GREAT LAKES REGION TO OBTAIN THIS INFORMATION.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: PROTECT, EROSION, CR 8

****
REF. NO.-0094

BUREAU OF SPORT FISHERIES AND WILDLIFE. 1972.

SOUTHERN CALIFORNIA ESTUARIES AND COASTAL WETLANDS: ENDANGERED ENVIRONMENTS.

U.S. FISH AND WILDLIFE SERVICE. 8PP.

A REPORT ON THE VALUE OF ESTUARIES ON NATIONAL FISH AND WILDLIFE RESOURCES. THE HIGH PRODUCTIVITY OF SOUTHERN CALIFORNIA ESTUARIES IS EMPHASIZED. DISCUSSION OF THE ECOLOGICAL INTERRELATIONSHIPS WITHIN ESTUARIES IS RATHER BROAD BUT FAIRLY THOROUGH. MAN'S EFFECTS UPON ESTUARIES HAVE REDUCED THEIR PRODUCTIVITY AND EVEN DESTROYED SOME. MAN'S PLACE IN THE ENVIRONMENT OF COASTAL WETLANDS MUST BE UNDERSTOOD AND THESE AREAS PROTECTED FOR THEIR SCENIC BEAUTY, RECREATION VALUE AND ESPECIALLY THEIR PRODUCTIVITY.

NATURE OF REFFRENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: CR 2, PRODUCTIVITY, CUMULATIVE EFFECTS

****
REF. NO.-0555

BYRNE, R.J. 1977.

LETTER CONATINING COMMENTS ON BIOLOGICAL IMPACTS OF VERTICAL BULKHEADS AND OFFSHORE SAND BAG SILLS.

DEPT. OF GEOLOGICAL OCEANOGRAPHY. VIRGINIA INSTITUTE OF MARINE SCIENCE, GLOUCESTER POINT, VIRGINIA. 2 PP.

THE BIOLOGICAL IMPACT OF VERTICAL BULKHEADS AND OFFSHORE SAND BAG SILLS WERE DISCUSSED. NO

REF. NO.-0555 (CONTINUED)

SPECIFIC BIOLOGICAL STUDIES ON VERTICAL BULKHEADS OR SILLS WERE KNOWN TO THE AUTHOR. OBSERVATIONS HAVE INDICATED INTER-TIDAL FAUNA MAY BE LOST WHEN VERTICAL BULKHEADS ARE PLACED NEAR OR BELOW HIGH WATER LINE DUE TO CHANGES IN CIRCULATION AND RESULTING LOSS OF SAND ACCUMULATION. A POSSIBLE LONG TERM IMPACT OF BULKHEADING IS THE PREVENTION OF TIDAL MARSH COMMUNITIES FROM MOVING LANDWARD AS SEA-LEVEL RISES. OFFSHORE SAND BAG SILLS HAVE RESULTED IN HIGHER AND WIDER BEACHES WHEN USED ON THIN BEACHES OVERLYING IMPERMEABLE SUBSTRATES. IT IS SPECULATED THAT IMPACTS ARE SIMILAR TO THOSE OF A GROIN SYSTEM.

NATURE OF REFFRENCE: BIO

TYPE OF REFERENCE: INT

DESCRIPTORS: BULKHEAD; SAND BAG SILL

****
REF. NO.-0398

CALDER, D.R. BEARDEN, C.M. BOOTHE, B.B., JR. TINER R.W., JR. 1977.

A RECONNAISSANCE OF THE MACROBENTHIC COMMUNITIES, WETLANDS, AND SHELLFISH RESOURCES OF LITTLE RIVER INLET, NORTH CAROLINA AND SOUTH CAROLINA.

S.C. MAR. RES. CENT. TECH. REP. NO. 17. 58 PP.

PRIOR TO INITIATION OF THE LITTLE RIVER NAVIGATION PROJECT, INVOLVING CHANNEL STABILIZATION AND A JETTY SYSTEM, A STUDY WAS CONDUCTED TO INVENTORY BENTHIC COMMUNITIES, WETLANDS, AND SHELLFISH RESOURCES OF THE AREA. QUALITATIVE AND QUANTITIVE SAMPLES WERE COLLECTED, AND AERIAL PHOTOGRAPHS WERE USED. THE NUMBER OF BENTHIC INVERTEBRATE SPECIES IS RELATIVELY LOW; HOWEVER, THE ESTUARY SERVES AS AN IMPORTANT NURSERY AREA FOR SHRIMP, CRABS AND FISHES.

NATURE OF REFFRENCE: BIO

TYPE OF REFERENCE: PUR

DESCRIPTORS: CR 5, JETTY, DREDGE/FILL, BENTHOS, HABITAT

****
REF. NO.-0399

CALDER, D.R. BEARDEN, C.M. BOOTHE, B.B., JR. 1976.

ENVIRONMENTAL INVENTORY OF A SMALL NEUTRAL EMBAYMENT: MURRELLS INLET,SOUTH CAROLINA.

S.C. MAR. RES. CENT. TECH. REP. NO. 10. 52 PP. + APPENDICES.

STUDIES WERE CONDUCTED TO INVENTORY MACROBENTHIC COMMUNITIES, MARSHLANDS, OYSTER REEFS, AND OTHER WETLAND AREAS OF MURRELLS INLET PRIOR TO INITIATION OF A PROJECT TO CONSTRUCT TWO JETTIES AND PROVIDE A STABILIZED CHANNEL. DREDGE AND GRAB COLLECTIONS WHERE TAKEN AND AERIAL PHOTOGRAPHS WERE USED. SPECIES DIVERSITY WAS HIGHEST INSIDE AND LOWEST AT THE MOUTH OF THE INLET, TYPICAL OF A NEUTRAL EMBAYMENT AND REFLECTING THE ABSENCE OF A SALINITY GRADIENT.

NATURE OF REFFRENCE: BIO

REF. NO.-0399 (CONTINUED)

TYPE OF REFERENCE: PUB

DESCRIPTORS: HARBOR, CR 5, HABITAT, JETTY, DREDGE/FILL, BENTHOS, FISH, INVERTEBRATES, SHELLFISH

****
REF. NO.-0024

CALDWELL, J.M. 1959.

SHORE EROSION BY STORM WAVES.

U.S. ARMY CORPS OF ENGINEERS. CERC MISC. PAPER 1-59. 17 PP.

A SUMMARY OF THE INFORMATION IN THE FILES OF THE BEACH EROSION BOARD ON THE MAGNITUDE OF SHORE EROSION WHICH CAN BE EXPECTED FROM HURRICANE AND STORM WAVES IS PRESENTED. ESTABLISHMENT OF PROTECTIVE BEACHES AND DUNES ARE SUGGESTED TO CURB MAINLAND EROSION. THE USE OF BULKHEADS AND GROINS IS MENTIONED AS A WAY TO MINIMIZE EROSION OF PROTECTIVE BEACHES AND DUNES.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: EROSION, GROIN, BULKHEAD

****
REF. NO.-0135

CAMMEN, C.M. SENECA, E.D. COPELAND, B.J. 1976.

ANIMAL COLONIZATION OF MAN-INITIATED SALT MASHES ON DREDGE SPOIL.

U.S. ARMY CORPS OF ENGINEERS. CERC TECHNICAL PAPER NO. 76-7. 58 PP.

DREDGE SPOIL (SAND AND MUD SCOOPED FROM THE BOTTOM OF NAVIGATION ROUTES AND PILED HIGH ON CHANNEL EDGES) HAS BEEN SUCCESSFULLY STABILIZED WITH PLANTINGS OF NORTH CAROLINA'S DOMINANT MARSH GRASS, SPARTINA ALTERNIFLORA. BENEFITS OF STABILIZING SPOIL WITH SPARINA, COMMONLY KNOWN AS SMOOTH CORDGRASS, APPEAR TO BE TWOFOLD. IN THE SHORT TERM, MARSH GRASS SLOWS EROSION OF SPOIL BACK INTO THE WATERWAYS, THEREBY REDUCING THE NEED FOR FREQUENT AND COSTLY DREDGING WITH ITS WEAR AND TEAR ON THE ENVIRONMENT. IN THE LONG TERM, AREAS COVERED WITH SPARTINA COME TO LOOK LIKE NATURAL MARSHLANDS. MARSH PROVIDES A VITAL SOURCE OF NUTRIENTS AND FOOD FOR MANY YOUNG FISH AND SHELLFISH AND IS, THEREFORE, IMPORTANT TO FISHERY RESOURCES. THE PURPOSE OF THIS RESEARCH WAS TO ANSWER THE GENERAL QUESTION: DOES SPOIL COVERED WITH SMOOTH CORDGRASS FUNCTION SIMILARLY TO NATURAL MARSH? SPECIFICALLY, THE RESEARCH WAS AIMED AT DETERMINING DIFFERENCES IN ANIMAL LIFE (FAUNA) IN SPOIL AREAS AND NATURAL MARSH. FOUR OBJECTIVES WERE CARRIED OUT. THEY WERE: (A) TO DETERMINE WHAT FAUNA ARE FOUND IN TRANSPLANTED SPOIL; (B) TO COMPARE SPOIL AND NATURAL MARSH FAUNA; (C) TO DETERMINE IF SPOIL WILL EVER RESEMBLE THAT OF THE NATURAL MARSH; AND (D) IF THE ANSWER TO (C) IS YES, TO DETERMINE HOW LONG AFTER SPOIL IS DEPOSITED ANIMAL LIFE IN THE NEW MARSH WILL BECOME SIMILAR TO NATURAL MARSH FAUNA. AN ADDITIONAL OBJECTIVE WAS TO INVESTIGATE HOW THE GROWTH OF SPARTINA MAY AFFECT THE DEVELOPMENT OF ANIMAL LIFE. THE RESEARCH INDICATES THAT PLANTED SPOIL FAUNA AT DRUM INLET WILL MORE QUICKLY RESEMBLE THE NATURAL MARSH THAN THAT AT SNOW'S CUT, EVEN THOUGH THE DRUM INLET AREA

REF. NO.-0135 (CONTINUED)

HAS BEEN DEVELOPING FOR A SHORTER TIME. TWO EXPLANATIONS ARE OFFERED: (A) SEDIMENT PARTICLE SIZE AT DRUM INLET WAS ALMOST IDENTICAL TO THAT OF THE NATURAL MARSH, WHILE PARTICLES AT SNOW'S CUT WERE SMALLER THAN NATURAL MARSH SEDIMENT; AND (B) IT IS POSSIBLE THAT BECAUSE OF PERIODIC OVERWASH THE NATURAL MARSH AT DRUM INLET WAS LESS MATURE THAN THAT AT SNOW'S CUT. LESS MATURITY COULD MEAN THAT FAUNAL DEVELOPMENT WOULD REQUIRE LESS TIME TO RESEMBLE THAT IN THE NATURAL MARSH THAN IN A MORE MATURE SYSTEM. ONE INDICATION OF HOW LONG IT WILL TAKE SPOIL MARSH TO RESEMBLE NATURAL MARSH IS THE ORGANIC CARBON CONTENT OF THE SEDIMENT. USING ORGANIC CARBON CONTENT AS AN INDICATOR, ESTIMATES ARE THAT DRUM INLET SPOIL WILL RESEMBLE THAT OF NATURAL MARSH IN APPROXIMATELY 4 YEARS FROM THE TIME SPOIL WAS LAST DEPOSITED, BUT AT SNOW'S CUT, THE PROCESS MAY TAKE AS MUCH AS 25 YEARS. IN CONCLUSION, THE RESEARCH SHOWS THAT PLANTING SPARTINA ON DREDGE SPOIL CAN LEAD TO THE CREATON OF SALT MARSH THAT RESEMBLES MARSH BUILT BY NATURE. HOW LONG THIS TAKES DEPENDS ON HOW CLOSELY SPOIL RESEMBLES THE NATURAL MARSH SEDIMENT, THE NATURAL SEDIMENTATION RATE OF THE AREA, THE ELEVATION AND THE MATURITY OF THE NATURAL MARSH COMPARED TO THE AREA OF SPOIL DEPOSTION. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: DREDGE/FILL, EROSION, SUCCESSION, CR 5

****
REF. NO.-0502

CANDLE, R.D. 1974.

GOODYEAR SCRAP TIRE FLOATING BREAKWATER CONCEPTS.

PP. 193-211 IN PROC. FLOATING BREAKWATERS CONFERENCE, NEWPORT, RI. TECH. SER. NO 24. (Q.V. KOWALSKI, 1974A).

SCRAP TIRES ARE PROPOSED AS A CONSTRUCTION MATERIAL FOR BUILDING LARGE FLOATING BREAKWATER DEVICES. THE GOODYEAR SCRAP TIRE FLOATING BREAKWATER ASSEMBLIES ARE FORMED BY SECURING TOGETHER MODULAR BUNDLES OF TIGHTLY INTERLOCKED SCRAP TIRES WITH HIGH STRENGTH ROPE OR CABLE. THE CONSTRUCTION PROCEDURE YIELDS AN EASILY INSTALLED, READILY ADAPTABLE BREAKWATER STRUCTURE WHICH HAS HIGH ENERGY ABSORBING CAPACITY FOR NORMAL LOADING CONDITIONS, BUT WHICH DEFORMS AND YIELDS WHEN SUBJECTED TO OVERLOADS. THE DESIGN POSSIBILITIES USING SCRAP TIRE BUILDING MODULES ARE VIRTUALLY LIMITLESS. ALL SCRAP TIRE BREAKWATER CONSTRUCTIONS SHOULD BE VERY EFFECTIVE AS ENERGY DISSIPATORS BECAUSE OF THE PERVIOUS, AND FLEXIBLE NATURE OF THE MODULES. THE SCRAP TIRES ARE IDEAL ENERGY- ABSORBING COMPONENTS. (MODIFIED AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0402

CARLISLE, J. 1977.

REF. NO.-0402 (CONTINUED)

OBSERVATIONS OF EFFECTS OF SHORELINE STRUCTURES.

CALIFORNIA DEPARTMENT OF FISH AND GAME, LONG BEACH, CA. PERS. COMM.

OBSERVED EFFECTS OF A NUMBER OF STRUCTURES IN SOUTHERN CALIFORNIA INCLUDE HABITAT LOSS, PROLIFERATION OF RESIDENTIAL DEVELOPMENTS INCORPORATING BULKHEADED CHANNELS, NEW HABITAT DEVELOPING WHERE RIPRAP IS USED, AND A GRADUAL NET LOSS OF SAND FROM THE BEACHES IN SPITE OF GROINS BUILT TO PREVENT IT. ONE COMMON RESULT OF HARBORS HAVING POOR WATER CIRCULATION IS A HIGH INCIDENCE OF RED TIDES WITHIN THEM SINCE THEY ARE NATURAL TRAPS FOR DINOFLAGELLATE BLOOMS. MORE STUDY IS NEEDED TO PREVENT STAGNANT IN HARBORS WITHOUT SACRIFICING LOW WAVE ENERGY CONDITIONS.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: INT

DESCRIPTORS: GROIN, BULKHEAD, HARBOR, LITTORAL PROCESSES, CR 2, HABITAT

****
REF. NO.-0406

CARLTON, J.M. 1974.

LAND-BUILDING AND STABILIZATION BY MANGROVES.

ENVIRONMENTAL CONSERVATION 1(4):285-294.

MANGROVES, A WOODY PERENNIAL, ARE UNIQUELY ADAPTED TO SALINE CONDITIONS ALONG COASTLINES. SOME RECOGNIZED ADAPTIVE MODIFICATIONS BY MANGROVES ARE: 1) STRUCTURAL AND PHYSIOLOGICAL ADAPTATIONS OF SEEDS AND FRUITS; 2) PRODUCTION IN THE RHIZOPHORACEAE OF SPECIALIZED, BRANCHING AERIAL ROOTS; 3) PRODUCTION OF PNEUMATOPHORES IN THE AVICENNIACEA, EXTENDING VERTICALLY ABOVE THE SUBSTRATE OR PHEUMATHODES IN OTHER SPECIES. THESE STRUCTURES APPEAR TO REPRESENT PLANT MODIFICATIONS TO FACILITATE RESPIRATION IN THE WATERLOGGED HABITAT. WITH THE PROPER SUBSTRATE SEEDLINGS MAY BE TRANSPORTED SUCCESSFULLY. WITH PRUNING THEY MAY THEN BE UTILIZED FOR STABILIZATION AROUND HOUSING DEVELOPMENTS. BLACK MANGROVES APPEAR TO BE THE MOST USEFUL FOR THIS PURPOSE. SOME INSECT AND ISOPOD DAMAGE HAS BEEN NOTED AND SUCH DAMAGE MAY LEAD TO INCREASED COASTAL EROSION. MANGROVES HAVE ALSO BEEN SUGGESTED FOR USE AS STABILIZERS OF SUBSTRATES IN CONJUNCTION WITH PLANNED FILLING AND SEAWALL CONSTRUCTION.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: SEDIMENTATION, STABILIZE, CUMULATIVE EFFECTS, CR 4, LAND PLANTS

****
REF. NO.-0467

CARROLL, A. UNDATED.

DEVELOPER'S HANDBOOK.

best copy available

REF. NO.-0467 (CONTINUED)

CONNECTICUT DEPT. ENVIRON. PROTECT. COASTAL AREA MANAGE. PROG. 60 PP.

THIS PUBLICATION PRESENTS, IN A NON-TECHNICAL, GRAPHIC FORMAT, MAJOR NATURAL SYSTEMS AND RESOURCES AND THE OPPORTUNITIES AND LIMITATIONS THEY IMPOSE ON DEVELOPERS. IT IS INTENDED TO HELP DEVELOPERS AVOID EXPENSIVE CORRECTIVE MEASURES AND EQUALLY COSTLY DELAYS IN OBTAINING PERMITS. THE HANDBOOK DEALS PRIMARILY WITH CONNECTICUT DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP) PERMIT PROGRAMS AND DOES NOT CONSIDER OTHER STATE AND FEDERAL PERMIT REQUIREMENTS THAT EXIST IN ADDITION TO THE DEP ONES.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: BULKHEAD, JETTY, GROIN, PILING, HARBOR, BRIDGE, CAUSEWAY, CR 7

****
REF. NO.-0046

CARSTEA, D. BINDER, A. STRIETER, R. BOBERSCHMIDT, L. THOMAS, L. GOLDEN, J. 1975.

GUIDELINES FOR THE ENVIRONMENTAL IMPACT ASSESSMENT OF SMALL STRUCTURES AND RELATED ACTIVITIES IN COASTAL BODIES OF WATER.

THE MITRE CORP., MCLEAN, VIRGINIA TECH. REPT. MTR-6916. 344 PP.

CRITERIA FOR THE EVALUATION OF ENVIRONMENTAL IMPACT OF VARIOUS SHORELINE STRUCTURES ARE GIVEN. WATER TURBIDITY, STORM RUNOFF, BOAT EMISSIONS, EROSION, SEDIMENTATION, IMPATCS ON BIOTA, IMPACTS ON ECOLOGICALLY VITAL AREAS, AIR QUALITY, AND NOISE ARE SOME OF THE FACTORS CONSIDERED. STRUCTURES REVIEWED INCLUDE RIPRAP, BULKHEADS, GROINS, JETTIES, PIERS, DREDGE-FILL, OUTFALLS, SUBMERGED LINES AND PIPES, AND AERIAL CROSSINGS.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: UNPUB

DESCRIPTORS: GROIN, JETTY, BULKHEAD, REVETMENT, PIER, SEDIMENTATION, CR 6, CR 7, BENTHOS, DREDGE/FILL, EROSION, PROTECT, STABILIZE, MOORING, HABITAT, FISH, PRODUCTIVITY

****
REF. NO.-0085

CARSTEA, D. GOLDEN, J. THOMAS, L. 1975.

GUIDELINES FOR THE ANALYSIS OF CUMULATIVE ENVIRONMENTAL EFFECTS OF SMALL PROJECTS IN NAVIGABLE WATERS.

U.S. ARMY CORPS OF ENGINEERS. MITRE TECHNICAL REPORT MTR-6939. 103 PP.

GUIDELINES FOR THE ASSESSMENT OF CUMULATIVE ENVIRONMENTAL IMPACTS OF PROPOSED PROJECTS IN NAVIGABLE WATERS ARE GIVEN. THESE GUIDELINES ASSIST IN THE UNDERSTANDING OF THE

REF. NO.-0085 (CONTINUED)

INTERRELATIONSHIPS AMONG ENVIRONMENTAL PARAMETERS AND PROVIDE A MEANS OF PROJECTING THE RESULTS OF PROJECT IMPLEMENTATION AND EVALUATING PROJECT APPLICATIONS. THE ENVIRNOMENTAL PARAMETERS FOR WHICH GUIDELINES ARE PRESENTED AS TO THE CUMULATIVE IMPACTS OF THEIR IMPLEMENTATION INCLUDE NAVIGATION, NOISE, AIR QUALITY, WATER QUALITY, AND SOCIOECONOMICS.

NATURE OF REFFRENCE: BIO

TYPE OF REFERENCE: UNPUB

DESCRIPTORS: PIER, BULKHEAD, GROIN, JETTY, REVETMENT, BENTHOS, SEDIMENTATION

****
REF. NO.-0469

CARSTEA, D. ROBERSCHMIDT, L. HOLBERGER, R. SAARI, S. STRIETER, R. 1976.

CONSIDERATIONS FOR THE ENVIRONMENTAL IMPACT ASSESSMENT OF SMALL STRUCTURES AND RELATED ACTIVITIES AS APPLIED TO THE NEW ORLEANS DISTRICT, U.S. ARMY CORPS OF ENGINEERS.

2 VOLS. THE MITRE CORP., MCLEAN, VA. PAGING VARIOUS.

THIS DOCUMENT DESCRIBES THE GUIDELINES DEVELOPED FOR THE U.S. ARMY CORPS OF ENGINEERS, NEW ORLEANS DISTRICT FOR USE IN DESCRIBING THE PROBABLE ENVIRONMENTAL IMPACTS (PHYSICAL, BIOLOGICAL AND SOCIOECONOMIC) OF REPRESENTATIVE STRUCTURES AND COMMON ACTIVITIES PERFORMED IN THE LOUISIANA DISTRICT. GENERIC ENVIRONMENTAL ANALYSES ARE MADE WITH RESPECT TO THE FOLLOWING ACTIONS: CANAL AND CANAL EXTENSION, BULKHEAD, RAMP, PILE-SUPPORTED STRUCTURES, PIPELINE, DREDGING, SUBMERGED LINE, PIER, RING LEVEE-BOARD ROAD AND AERIAL CROSSING. THE GUIDELINES ALLOW FOR AN EFFECTIVE AND RAPID ENVIRONMENTAL ASSESSMENT OF SPECIFIC PERMIT APPLICATIONS DURING THE REVIEW PROCESS OF SUCH APPLICATIONS.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: BULKHEAD, RAMP, PIER, SUPPORT, PROTECT, MOORING, LAUNCH, RECREATION, SUPPORT, HABITAT, CUMULATIVE EFFECTS, PRODUCTIVITY, CR 3

****
REF. NO.-0422

CARTER, C.H. 1973.

NATURAL AND MANMADE FEATURES AFFECTING THE OHIO SHORE OF LAKE ERIE.

OHIO DEPT. NAT. RES. GUIDEBOOK NO. 1. 34 PP.

THIS PUBLICATION IS INTENDED TO SERVE AS A TOUR GUIDE TO REPRESENTATIVE AREAS OF INTEREST ALONG THE OHIO SHORE OF LAKE ERIE. BOTH NATURAL AND MANMADE SHORELINE FEATURES ARE DESCRIBED AND HISTORICAL CHANGES IN THE SHORELINE ARE DISCUSSED. AERIAL PHOTOGRAPHS OF EACH STOP ALONG THE TOUR ARE INCLUDED AND EACH IS ACCOMPANIED BY A BRIEF DISCUSSION OF EROSION, CONSTRUCTION AND EFFECTS OF STRUCTURES.

REF. NO.-0422 (CONTINUED)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0243

CENTER FOR THE ENVIRONMENT AND MAN INC. 1971.

SHORE MANAGEMENT GUIDELINES.

HARTFORD, CT. PREPARED FOR U.S. ARMY CORPS OF ENGINEERS. 62 PP.

IN 1968 THE 90TH CONGRESS AUTHORIZED A NATIONAL APPRAISAL OF SHORE EROSION AND SHORE PROTECTION NEEDS. BEACH AND SHORE EROSION ARE RECOGNIZED AS A CONCERN FOR ALL LEVELS OF GOVERNMENT AND FOR ALL CITIZENS. THIS PUBLICATION PROVIDES INFORMATION TO ASSIST IN DEVELOPING AND IMPLEMENTING SHORE MANAGEMENT PROGRAMS. THIS IS A THREE-PART PRESENTATION COVERING THE MUNICIPAL LEVEL, METROPOLITAN-COUNTY LEVEL, MULTI-COUNTY LEVEL AND STATE LEVEL IN THE FIRST PART; SHORE MANAGEMENT PROCEDURES IN THE SECOND PART AND PLANNING TO IMPROVE MANAGEMENT AND ENGINEERING TECHNIQUES IS DISCUSSED IN THE THIRD PART. (NTIS ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: PROTECT, REVETMENT, STABILIZE, BREAKWATER, JETTY, GROIN, RECREATION, BULKHEAD, DREDGE/FILL

****
REF. NO.-0078

CHABRECK, R.H. 1968.

WIERS, PLUGS AND ARTIFICIAL POTHOLES FOR THE MANAGEMENT OF WILDLIFE IN COASTAL MARSHES.

PAGES 178-192 IN: NEWSOM, J.D. (ED.) PROC. OF THE MARSH AND ESTUARY MANAGEMENT SYMP., BATON ROUGE, LA.

BY CAREFUL MANAGEMENT THE VALUE OF OUR SOUTHEASTERN MARSHES CAN BE GREATLY IMPROVED FOR WILDLIFE. IMPOUNDMENTS GREATLY BENEFIT DUCKS, BUT HAVE CERTAIN DRAWBACKS WHICH AT TIMES MAKE IT NECESSARY TO USE OTHER TYPES OF MANAGEMENT. THESE INCLUDE WEIRS AND EARTHEN PLUGS IN THE DRAINAGE SYSTEMS AND POTHOLES AND DITCHES IN THE MARSH. WEIRS AND PLUGS STABILIZE WATER LEVELS IN MARSH PONDS AND LAKES AND GREATLY INCREASE ACCESS TO THE MARSHES. THE PONDS BEHIND WEIRS PRODUCE FAR MORE AQUATIC VEGETATION THAN NATURAL PONDS, HOWEVER THE EARTHEN PLUGS HAVE NO NOTICEABLE EFFECT ON AQUATIC VEGETATION UNLESS CERTAIN TREATMENT MEASURES ARE APPLIED. POTHOLES AND DITCHES CAN BE MADE IN MARSHES TO CREATE PERMANENT WATER AREAS AND TO OPEN UP DENSE VEGETATION.

NATURE OF REFERENCE: GENERAL

REF. NO.-0078 (CONTINUED)

TYPE OF REFERENCE: PUB

DESCRIPTORS: ECONOMICS, HABITAT, AQUATIC PLANTS

****
REF. NO.-0531

CHENOWETH, D.R. 1974.

A DEFENSE FOR A SHORELINE.

WATER SPECTRUM 6(3):41-46.

A TEMPORARY EMERGENCY DIKING PROJECT ON THE GREAT LAKES IS DISCUSSED. 'OPERATION FORESIGHT ON THE GREAT LAKES' INVOLVED MORE THAN 100 MILES OF ENDANGERED SHORELINE IN COMMUNITIES OF ALL OF THE GREAT LAKES EXCLUDING LAKE SUPERIOR WHERE THE DANGER OF FLOODING WAS NOT SO GREAT. IT IS CONCLUDED THAT THE DIKING SYSTEMS ARE NOT PERFECT, BUT PROPERLY MAINTAINED, WILL BE OF GREAT ASSISTANCE IN MINIMIZING FLOOD DAMAGE.

NATURE OF REFFRENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0254

CHEN, T.C. 1961.

EXPERIMENTAL STUDY ON THE SOLITARY WAVE REFLECTION ALONG A STRAIGHT SLOPED WALL AT OBLIQUE ANGLE OF INCIDENCE.

U.S. ARMY CORPS OF ENGINEERS. BEB TECH. MEMO. NO. 124. 24 PP.

THE REFLECTION PATTERN OF A SOLITARY WAVE IMPINGING ON A SLOPING WALL AND SOME ACCOMPANYING PHENOMENA WERE STUDIED IN A LABORATORY RIPPLE TANK. THE ANGLE OF INCIDENCE OF THE WAVE WAS VARIED BETWEEN ZERO AND 90 DEGREES AND THE SLOPE ANGLE OF THE WALL WITH THE HORIZONTAL, BETWEEN 20 DEGREES AND 150 DEGREES. IT WAS FOUND THAT CURVED RIPPLES DEVELOPED WHEN INCIDENT WAVES HIT A WALL OF SLOPE LESS THAN 65 DEGREES APPROXIMATELY. AS THE ANGLE OF INCIDENCE INCREASED, AN ENVELOPE OF THESE RIPPLES FORMED AND BECAME LARGE ENOUGH BEYOND A CERTAIN ANGLE OF INCIDENCE, DEPENDING ON SLOPE, TO LOOK LIKE A REFLECTED WAVE BUT REMAINED CURVED AS WERE THE RIPPLES. FOR A RELATIVELY STEEP WALL SLOPE, LARGER THAN 65 DEGREES, REFLECTION WAS REGULAR, BUT THE ANGLE OF INCIDENCE AT WHICH A STRAIGHT REFLECTED WAVE OCCURRED DEPENDED ON THE SLOPE OF THE WALL. FOR A WALL WITH NEGATIVE SLOPE MACH REFLECTION TOOK PLACE FOR WAVE INCIDENT ANGLES BETWEEN 30 DEGREES AND 35 DEGREES. MACH REFLECTION CEASED AND REGULAR REFLECTION OCCURRED WHEN THE ANGLE OF INCIDENCE WAS 45 DEGREES. THREE TYPES OF WAVE BEHAVIOR RELATIVE TO BREAKING WERE OBSERVED AND FOUND TO BE RELATED TO THE ANGLE OF INCIDENCE.

NATURE OF REFFRENCE: ENG

REF. NO.-0254 (CONTINUED)

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0490

CHESAPEAKE RESEARCH CONSORTIUM, INC. 1976.

CASE STUDY OF A CORPS OF ENGINEERS PERMIT APPLICATION: NABOP-P (MD. PORT ADMINISTRATION) 20.

CHESAPEAKE RES. CONSORTIUM PUB. NO. 2. 78 PP.

TO DEVELOP INFORMATION, CRITERIA AND GUIDELINES WHICH CAN BE USED TO IMPROVE THE MMANAGEMENT OF PHYSICAL ALTERATIONS OF CHESAPEAKE BAY. A CASE STUDY OF A PERMIT APPLICATION OF A PROPOSED PROJECT IS REVIEWED. THE MARYLAND PORT ADMINSTRATION PROPOSES TO BUILD A 1,350 FOOT BULKHEAD TO PROVIDE A TERMINAL COMPLEX FOR HANDLING GENERAL CARGO IN BALTIMORE HARBOR.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: CR 6, BULKHEAD, DREDGE/FILL, SEDIMENTATION, BENTHOS

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REF. NO.-0517

CHESAPEAKE RESEARCH CONSORTIUM, INC. 1974.

CASE STUDY OF A CORPS OF ENGINEERS PERMIT APPLICATION: NABOP-P (WATERGATE VILLAGE, ANNAPOLIS, MD.) 73-673.

CHESAPEAKE RES. CONSORTIUM PUB. NO. 1. 66 PP.

THE GOAL OF THIS STUDY IS TO DEVELOP INFORMATION, CRITERIA AND GUIDELINES WHICH CAN BE USED BY PUBLIC ADMINSTRATORS TO MANAGE PHYSICAL ALTERATIONS OF CHESAPEAKE BAY IN A MANNER THAT WILL ENHANCE THE USES OF THE REGION. AN APPLICATION BY WATERGATE VILLAGE TO THE BALTIMORE DISTRICT OFFICE OF THE U.S. ARMY CORPS OF ENGINEERS FOR PERMISSION TO EXPAND ITS BOAT DOCKING FACILITIES WAS SELECTED AS A CASE STUDY. THIS CASE STUDY PROVIDES A MODEL OF A METHODOLOGY WHICH IF EMPLOYED BY EXISTING REGULATORY AGENCIES COULD IMPROVE THE QUALITY OF THEIR DECISIONS.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: CR 6, HARBOR, BULKHEAD, DREDGE/FILL, MOORING, HABITAT

****
REF. NO.-0455

CHESTNUTT, C.R. SCHILLER, R.E., JR. 1971.

SCOUR OF SIMULATED GULF COAST SAND BEACHES DUE TO WAVE ACTION IN FRONT OF SEA WALLS AND DUNE BARRIERS.

SEA GRANT PUBL. TAMU-SG-71-207. 54 PP.

THIS STUDY WAS AN ATTEMPT TO INVESTIGATE SCOUR IN FRONT OF SEA WALLS AND DUNE BARRIERS FOR CONDITIONS SIMULATING TEXAS GULF COAST BEACHES. TEXAS BEACH SAND, WHICH WAS FOUND TO BE UNIFORM IN GRAIN SIZE ALONG THE COAST FROM SABINE PASS TO MID-WAY OF PADRE ISLAND, WAS USED IN CONDUCTING THE EXPERIMENTS. THREE BEACH SLOPES, 1:40, 1:70, AND 1:100, TYPICAL OF TEXAS BEACHES WERE STUDIED. SEA WALLS WITH INCLINATIONS OF 15 DEGREES, 30 DEGREES, AND 90 DEGREES FROM THE HORIZONTAL WERE INSERTED IN EACH OF THE THREE SLOPES. STUDIES WERE ALSO CONDUCTED ON BEACH FORMATIONS WITHOUT A SEA WALL. THE ULTIMATE SCOUR DEPTH JUST IN FRONT OF THE WALL DECREASED AS THE BEACH SLOPE FLATTENED AND AS THE ANGLE OF INCLINATION OF THE SEA WALL DECREASED. AS WAVE HEIGHT INCREASED, THE SCOUR DEPTH INCREASED. (MODIFIED AUTHOR ABSTRACT)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUR

DESCRIPTORS: BULKHEAD, EROSION, CH 3

****
REF. NO.-0503

CHRISTENSEN, D.R. RICHEY, E.P. 1974.

PROTOTYPE PERFORMANCE CHARACTERISTICS OF A FLOATING BREAKWATER.

PP. 159-179 IN: PROC. FLOATING BREAKWATERS CONFERENCE, NEWPORT, RI. TECH. SER. NO. 24. (Q.V. KOWALSKI, 1974A).

THE CHARACTERISTICS (I.E., TRANSMISSION COEFFICIENTS, ANCHOR FORCES, AND ACCELERATIONS) IN HEAVE, ROLL, AND SWAY ARE EVALUATED FROM MEASUREMENTS TAKEN ON A FLOATING BREAKWATER PROTECTING A SMALL BOAT HARBOR AT TENAKEE SPRINGS, ALASKA. THE BREAKWATER CONSISTS OF SERIES-CONECTED MODULES OF LIGHWEIGHT, POST-TENSIONED, STYROFOAM FILLED CONCRETE. THE MODULES, IN PLANFORM, ARE 21'X60' OPEN RECTANGLES WITH A THREE FOOT PERIMETER AND DRAFT ABOUT 3 FT OF THEIR 5 FT VERTICAL DIMENSION. THE FIELD MEASUREMENTS WERE PLANNED WITH THE COMBINED PURPOSE OF EVALUATING A PARTICULAR TYPE OF BREAKWATER UNDER DIFFERENT WAVE EXPOSURES AND TO SUPPLY BASIC DATA FOR THE VERIFICATION AND DEVELOPMENT OF A THEORETICAL PREDICTIVE MODEL FOR BREAKWATER PERFORMANCE. THE INSTRUMENTATION WAS DESIGNED WITH MULTIPLE- CHANNEL, DIGITAL RECORDING CAPABILITY AND PACKAGED FOR USE IN REMOTE LOCATIONS, REQUIRING ONLY PERIODICAL MAINTENANCE CHECKS AND TAPE CHANGES. THE SYSTEM CAN BE SET TO BE ACTUATED AT A SELECTED WIND SPEED AND TO SAMPLE THE VARIOUS INPUT SENSORS AT PRESCRIBED INTERVALS AND DURATIONS OF TIME.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0082

CHRISTMAS, J.Y. 1973.

COOPERATIVE GULF OF MEXICO ESTUARINE INVENTORY AND STUDY, MISSISSIPPI.

MISSISSIPPI GULF COAST RESEARCH LABORATORY, OCEAN SPRINGS, MISS. 144 PP.

THIS ARTICLE COVERS IN DEPTH THE ESTUARINE AREA OF MISSISSIPPI. A GENERAL DESCRIPTION OF THE MISSISSIPPI BASIN TYPE OF ESTUARY, SHORELINE TOPOGRAPHY AND GEOLOGY ARE DISCUSSED. METHODS OF WET SURFACE AREA DETERMINATION, DEPTH AT VARIOUS TIDES AND SPECIFIC CHANNELS AND HARBORS WITH THEIR ATTENDANT NEEDS FOR UPKEEP ARE ALSO COVERED. TYPES OF SUBMERGED VEGETATION WERE OBSERVED AS WERE THE PRINCIPAL ENVIRONMENTAL FACTORS: SALINITY, TEMPERATURE, AND OXYGEN. OTHER SECTIONS DISCUSS HYDROLOGY, SEDIMENTOLOGY, AND BIOLOGY.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: DREDGE/FILL, HABITAT, CR 3

****
REF. NO.-0223

CILWECK, B.A. 1969.

WAVE DAMAGE, SANTA CATALINA ISLAND.

PP. 319-321 IN: R. LUNG AND R. PROCTOR. ENGINEERING GEOLOGY IN SOUTHERN CALIFORNIA. ASSN OF ENGINEERING GEOLOGISTS, ARCADIA, CA.

THE PHYSIOGRAPHY OF CATALINA ISLAND, CALIFORNIA AND THE OCEAN AND WIND CURRENTS IMPINGING UPON THIS ISLAND ARE DESCRIBED. IMPROVEMENT AND EXPANSION OF MOORING AND BOATING FACILITIES ON THE ISLAND HAVE NOT KEPT PACE WITH INCREASED USAGE OF THE TWO MAIN HARBOR AREAS OF THE ISLAND. STORMS AND SANTA ANA WINDS (WINDS BLOWING SEAWARD DOWN MAINLAND SLOPES AND VALLEYS) PERIODICALLY CAUSE EXTENSIVE DAMAGE TO THESE LARGELY UNPROTECTED HARBORS. CONSTRUCTION OF BREAKWATERS AND/OR HARBOR FACILITIES WITH THE ASSISTANCE OF A MARINE GEOLOGIST WOULD ELIMINATE THIS PROBLEM

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0126

CLARK, J. 1974.

COASTAL ECOSYSTEMS: ECOLOGICAL CONSIDERATIONS FOR MANAGEMENT OF THE COASTAL ZONE.

THE CONSERVATION FOUNDATION WASHINGTON, D.C. 191 PP.

REF. NO.-0126 (CONTINUED)

THE PURPOSE OF THIS GUIDEBOOK IS TO REDUCE A VAST STOCKPILE OF ECOLOGICAL DATA TO A FEW SIMPLE PRINCIPLES, BY MEANS OF WHICH TO IMPROVE OUR USE OF COASTAL LANDS AND WATER. STARTING WITH A FOUNDATION OF FUNDAMENTAL ECOLOGIC PRINCIPLES THE AUTHOR HAS DEVELOPED FOR THIS GUIDEBOOK A NUMBER OF GENERAL MANAGEMENT RULES AND SUGGESTED A VARIETY OF CONSTRAINTS ON COASTAL DEVELOPMENT ACTIVITIES. THESE CONSTRAINTS ARE AIMED AT SPECIFIC USES OF COASTAL WATERS AND SHORELANDS SUCH AS AGRICULTURE, MARINAS, RESIDENTIAL DEVELOPMENT, AND SO FORTH. THE AUTHOR ATTEMPTS TO PROVIDE A COMPREHENSIVE ECOLOGICAL BACKGROUND FOR DECISION MAKING AND TO SUGGEST A FRAMEWORK FOR MANAGEMENT PRACTICE WHICH WILL LEAD TO THE BEST ACHIEVABLE ECOSYSTEM FUNCTION. (MODIFIED AUTHOR ABSTRACT)

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: BULKHEAD, GROIN, EROSION, DREDGE/FILL, SEDIMENTATION, HABITAT, PIER, HARBOR, BREAKWATER, BRIDGE, CAUSEWAY

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REF. NO.-0435

CLARK, J. SAROKWASH, P.J. 1974.

ROOKERY BAY LAND USE STUDIES, ENVIRONMENTAL PLANNING STRATEGIES FOR THE DEVELOPMENT OF A MANGROVE SHORELINE.

STUDY NO. 9. IN J. CLARK AND P.J. SAROKWASH, PRINCIPLES OF ECOSYSTEM MANAGEMENT. THE CONSERVATION FOUNDATION, WASHINGTON, D.C. 17 PP.

THE PROTECTION OF ESTUARINE ECOSYSTEMS REQUIRES A COMPREHENSIVE COASTAL ZONE MANAGEMENT PROGRAM WITH SPECIFIC ENVIRONMENTAL CONTROLS SET WITHIN THIS LARGER FRAMEWORK. CONTROL ELEMENTS MUST BE DERIVED FROM CHARACTERISTICS OF THE ECOSYSTEM INVOLVED AND DESIGNED TO ACHIEVE THE BEST LEVEL OF ECOSYSTEM FUNCTION POSSIBLE. THE BASIC MANAGEMENT UNIT MUST BE A COMPLETE COASTAL ECOSYSTEM INCLUDING BOTH THE COASTAL WATER BASIN AND RELATED ADJACENT SHORELANDS. WITHIN THIS UNIT, COMPONENTS OF VITAL IMPORTANCE TO CERTAIN SPECIES OR TO THE FUNCTIONING OF THE ENTIRE ECOSYSTEM MUST BE CLASSIFIED AS VITAL AREAS AND PROTECTED FROM SIGNIFICANT ALTERATION AND POLLUTION. THE COASTAL FLOOD-PLAIN MAY BE DESIGNATED AN AREA OF ENVIRONMENTAL CONCERN, OR CONSERVATION AREA, PROTECTED BY STRINGENT CONTROLS ON DEVELOPMENT, OR DESIGNATED A BUFFER AREA TO PROTECT VITAL AREAS ALONG THE SHORELINE. SPECIFIC MANAGEMENT PRACTICE REQUIRED TO MINIMIZE DISTURBANCE OF THE COASTAL ENVIRONMENT INCLUDE CONTROLS ON DEVELOPMENT ACTIVITIES WHICH AFFECT WATER CIRCULATION, TEMPERATURE, SALINITY, TURBIDITY, OXYGEN, NUTRIENT SUPPLY, LEVELS OF TOXIC SUBSTANCES, AND VITAL AREAS. ECOSYSTEM REQUIREMENTS AND RECOMMENDED MANAGEMENT PRACTICE APPLICABLE TO SOUTH FLORIDA ARE DISCUSSED, AS ARE CERTAIN TYPES OF VITAL AREAS OF SOUTH FLORIDA, THE ECOLOGICAL FUNCTIONS THEY PERFORM, AND THEIR MAJOR VULNERABILITIES TO DISTURBANCE. (NTIS ABSTRACT)

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: CR 3, CR 4, CR 5, HABITAT, EROSION

****
REF. NO.-0355

CLARK, K.B. 1975.

NUDIBRANCH LIFE CYCLES IN THE NORTHWEST ATLANTIC AND THEIR RELATIONSHIP TO THE ECOLOGY OF FOULING COMMUNITIES.

HELGOLANDER WISS MEERESUNTERS 27:28-69.

THE AUTHOR EXAMINES THE LIFE HISTORIES OF VARIOUS NUDIBRANCH SPECIES IN RELATION TO THEIR FOOD SUPPLY OF FOULING COMMUNITIES. NUDIBRANCHS IN SOUTHERN NEW ENGLAND DISPLAY A HIGH THERMAL SENSITIVITY WHICH EXPLAINS THE SCARCITY OF INTERTIDAL SPECIES. SUDDEN DISAPPEARANCES OF ADULT POPULATIONS MAY BE DUE TO OVERGRAZING OF THEIR FOOD SUPPLY. ADULTS NORMALLY DIE FOLLOWING PERIODS OF EGG PRODUCTION.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUR

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0375

CLEWELL, A.F. GAINEY, L.F., JR HARLOS, D.P. TOBI, E.R. 1976.

BIOLOGICAL EFFECTS OF FILL-ROADS ACROSS SALT MARSHES.

FLORIDA DEPT.TRANSPORTATION. 16 PP. + APPENDICES.

THE PURPOSE OF THIS STUDY WAS TO DETERMINE THE BIOLOGICAL AND ENVIRONMENTAL EFFECTS OF THE PRESENCE OF FILL-ROADS BUILT ACROSS TIDAL SALT MARSHES IN THE NORTHERN GULF COAST OF FLORIDA. SEVEN SITES WITHIN FIVE MARSHES WERE SELECTED FOR STUDY IN WAKULLA, TAYLOR AND DIXIE COUNTIES. THESE SITES WERE CHOSEN BECAUSE THEY APPEARED TO REPRESENT VARIOUS DEGREES OF ENVIRONMENTAL MODIFICATION, RANGING IN INTENSITY FROM NEGLIGIBLE TO DRASTIC. VEGETATIONAL ZONATION WAS DETERMINED AT EACH SITE, AND RECENT AERIAL PHOTOGRAPHY SUPPLEMENTED THESE OBSERVATIONS. OLDER PHOTOGRAPHY WAS ALSO STUDIED WHEN AVAILABLE. THE DENSITIES OF THREE SPECIES OF MOLLUSCS WERE DETERMINED FROM QUADRATS AND TRANSECTS. SALINITIES AND ELEVATIONS ABOVE MEAN SEA LEVEL WERE MEASURED. WHEN THE RESULTING DATA REVEALED ENVIRONMENTAL MODIFICATION ATTRIBUTABLE TO THE PRESENCE OF A FILL-ROAD, THE SPECIFIC CAUSES IN TERMS OF HIGHWAY DESIGN WERE IDENTIFIED.
(MODIFIED AUTHOR ABSTRACT)

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUR

DESCRIPTORS: CAUSEWAY, CR 3, AQUATIC PLANTS

****
REF. NO.-0533

COASTAL ENVIRONMENTS INCORPORATED. 1976.

A PROCESS FOR COASTAL RESOURCE MANAGEMENT AND IMPACT ASSESSMENT.

REF. NO.-0533 (CONTINUED)

LOUISIANA COASTAL RESOURCES PROGRAM, BATON ROUGE. 7 PP.

THE NEED FOR ENVIRONMENTAL MANAGEMENT IS STRESSED THROUGH THE PRESENTATION OF: A BACKGROUND FOR UNDERSTANDING RESOURCE MANAGEMENT; AN OVERVIEW OF NATURALLY OCCURRING AND MANMADE PHYSICAL CONDITIONS ENCOUNTERED IN THE LOUISIANA COASTAL AREA; A PRACTICAL PROCEDURE FOR DEVELOPING A LOCAL COASTAL RESOURCE MANAGEMENT PRORAM; A SYSTEMATIC APPROACH TO RESOURCE MANAGEMENT; AND AN APPROACH TO ASSESSMENT OF ON SHORE IMPACTS RESULTING FROM OUTER CONTINENTAL SHELF ENERGY-RELATED RESOURCE DEVELOPMENT.

NATURE OF REFFRENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: CR 3, REVETMENT, GROIN, JETTY, REEF, DREDGE/FILL, PROTECT

****
REF. NO.-0392

COASTAL PLAINS CENTER FOR MARINE DEVELOPMENT SERVICE. 1973.

GUIDELINES FOR THE COASTAL ZONE.

WILMINGTON, NC. (EXCERPT) PP. 7-11.

GUIDELINES ARE GIVEN FOR VARIOUS LAND AND WATER USE CATEGORIES. EACH SPECIFIC USE OR GROUP OF USES IS LISTED, DEFINED, ASSOCIATED WITH ENVIRONMENTAL EFFECTS, AND FOLLOWED BY APPLICABLE GUIDELINES. THE USE ACTIVITIES CONSIDERED INCLUDE: AGRICULTURE, AQUACULTURE, BREAKWATERS, BULKHEADS, COMMERCIAL DEVELOPMENTS, DREDGING, FOREST MANAGEMENT, HISTORICAL AND ARCHAEOLOGICAL SITES, JETTIES AND GROINS, LANDFILL, MARINAS, MINING, AND PIERS.

NATURE OF REFFRENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: BREAKWATER, BULKHEAD, DREDGE/FILL, JETTY, GROIN, HARBOR, PIER, PROTECT

****
REF. NO.-0177

COEN-CAGLI, M.E. 1932.

PROTECTION OF COASTS AGAINST THE SEA, WITH OR WITHOUT PREPONDERING COASTAL DRIFT OF MATERIALS.

WORLD PORTS AMER. SHORE AND BEACH PRESERVATION ASSOC. 20(4):286-293.

THE PROTECTION OF CLIFFS, PEBBLE AND SANDY BEACHES BY VARIOUS METHODS IS DISCUSSED. THE AUTHOR STRESSES THE IMPORTANCE OF CONDUCTING A CAREFUL STUDY OF THE LOCALITY AND ALL THE FACTORS ACTING ON THE FORMATION OF THE COAST BEFORE ANY PLANS OF PROTECTON ARE ENACTED.

NATURE OF REFERENCE: ENG

REF. NO.-0177 (CONTINUED)

TYPE OF REFERENCE: PUB

DESCRIPTORS: GROIN, PROTECT, BREAKWATER, BULKHEAD

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REF. NO.-0156

COLE, B.J. UNDATED.

FLOATING SCRAP TIRE BREAKWATER AT EDGEWOOD YACHT CLUB.

1 PP. INFORMATION FURNISHED BY USFWS WITHOUT CITATION.

THE USE OF FLOATING SCRAP TIRE BREAKWATERS AS AN ALTERNATIVE TO ROCK JETTIES IS DISCUSSED. OVER A PERIOD OF TWO YEARS OCEAN ENGINEERS FROM THE UNIVERSITY OF RHODE ISLAND DESIGNED, CONSTRUCTED AND TESTED THREE FLOATING BREAKWATERS. THE SEA GRANT RESEARCH INDICATES THAT FLOATING SCRAP TIRE BREAKWATERS ARE HIGHLY EFFECTIVE IN PROVIDING PROTECTION FROM STORM WAVES UP TO FOUR FEET HIGH. IN ADDITION, DR TADEUS KOWALSKI OF SCOTLAND IS TESTING A SCALE MODEL BREAKWATER THAT SHOULD BE EFFECTIVE IN 30-FOOT SEAS.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: BREAKWATER, PROTECT, EROSION, HARBOR

****
REF. NO.-0246

COLE, B.J. 1974.

A REPORT ON THE THIRD MARINE RECREATION CONFERENCE: PLANNING FOR SHORELINE AND WATER USES.

MARINE ADVISORY SERVICE, U. OF RHODE ISLAND, KINGSTON. 20 PP.

BRIEF SUMMARIES ARE PRESENTED OF PAPERS GIVEN AT THE CONFERENCE ON PLANNING FOR SHORELINE AND WATER USES. THESE DEAL WITH: GOVERNMENT AND COASTAL MANAGEMENT; PLANNING, POLITICS, STATES RIGHTS, AND LAND USE REGULATION; ECONOMICS; AND RECREATION AND ENVIRONMENTAL EFFECTS. THE CONFERENCE WAS HELD IN MYSTIC, CONNECTICUT, DECEMBER 12, 13, 1973. (NTIS ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0007

COLLEY, R.H. 1967.

REF. NO.-0007 (CONTINUED)

OBSERVATIONS ON EXPERIMENTAL EVIDENCE OF THE EFFECTIVENESS OF CREOSOTE AND CREOSOTE-COAL TAR SOLUTION IN PREVENTING ATTACK ON MARINE PILING BY LIMNORIA TRIPUNCTATA.

PROC. AMER. WOOD PRESERVERS' ASSN. P 151-162.

IN COOLER NORTHERN MARINE WATERS, WHERE THE HAZARD OF LIMNORIA ATTACK MAY BE MINOR, CREOSOTED PILES HAVE GIVEN LONG SATISFACTORY SERVICE. POOR PERFORMANCE IS FREQUENTLY ENCOUNTERED UNDER EXTREME EXPOSURE CONDITIONS IN WARMER SOUTHERN WATERS. EXPERIMENTAL EVIDENCE FROM MARINE TESTS OF TREATED BLOCKS, PANELS AND FULL-SIZE PILES HAS SHOWN THAT NEITHER COKE OVEN CREOSOTE NOR CREOSOTE-COAL TAR SOLUTION IN ANY PRACTICAL CONCENTRATION IS AN EFFECTIVE PRESERVATIVE AGAINST ATTACK BY LIMNORIA TRIPUNCTATA. THIS EVIDENCE IS SUPPORTED BY THE RESULTS OF LABORATORY TESTS USING L. TRIPUNCTATA AND BY EXTENSIVE OBSERVATION OF TREATED PILES IN SERVICE IN SEVERE HAZARD LOCATIONS. THE MARINE AND LABORATORY TESTS ALSO INDICATE THAT, PENDING FURTHER INVESTIGATION, A DUAL TREATMENT WITH COPPER-CHROM-ARSENIC OR WITH COPPER-ARSENIC-SALTS- TO CONTROL L. TRIPUNCTATA- FOLLOWED BY CREOSOTE AT OPTIMUM RETENTION-TO CONTROL TEREDO AND BANKIA-SHOULD RESULT IS SIGNIFICANTLY BETTER PERFORMANCE UNDER EXTREME EXPOSURE CONDITIONS THAN CAN BE EXPECTED FROM THE USE OF EITHER CREOSOTE OR CREOSOTE-COAL TAR SOLUTION ALONE. DUAL-TREATED SOUTHERN PINE AND DOUGLAS FIR PILES, INSTALLED AT SEVERAL LOCATIONS IN TROPICAL AND SUB-TROPICAL WATERS, ARE UNDER OBSERVATION. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: PILING, SUPPORT

****
REF. NO.-0017

COLLIER, C.A. 1975.

SEAWALL AND REVETMENT EFFECTIVENESS, COST AND CONSTRUCTION.

FLORIDA SEA GRANT PROGRAM REPORT NO. 6.

THIS PUBLICATION IS DESIGNED TO GIVE OWNERS OF WATERFRONT PROPERTY AN EASILY UNDERSTOOD REFERENCE GUIDE EXPLAINING THE TYPES OF SHORE PROTECTION STRUCTURES THAT ARE COMMONLY AVAILABLE AND THE RELATIVE MERITS AND COSTS OF EACH. A SECTION IS ALSO INCLUDED ON PERMITTING PROCEDURES TO AID IN UNDERSTANDING THE PERTINENT GOVERNMENT REGULATIONS AND JURISDICTIONS. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: ECONOMICS, BULKHEAD, REVETMENT, GROIN, PROTECT, BREAKWATER, CR 3, CR 4, CR 5

****
REF. NO.-0504

COLONELL, J.M. CARVER, C.E., JR. LACOUTURE, J.M. 1974.

REF. NO.-0504 (CONTINUED)

ATTENUATION OF WIND-GENERATED DEEP WATER WAVES BY PNEUMATIC AND HYDRAULIC BREAKWATERS.

PP. 131-158 IN PROC. FLOATING BREAKWATERS CONFERENCE NEWPORT, RI. TECH. SER. NO. 24. (Q.V. KOWALSKI, 1974A).

OBJECTIVES OF THIS INVESTIGATION WERE: 1) TO DETERMINE THE OPERATIONAL CHARACTERISTICS OF TWO DEVICES--ONE HYDRAULIC AND THE OTHER PNEUMATIC-- IN A WIND-GENERATED WAVE ENVIRONMENT; AND 2) TO DEVELOP INSIGHT INTO THE PHYSICAL MECHANISMS BY WHICH WAVES ARE ATTENUATED BY THESE DEVICES. THE BREAKWATER DEVICES WERE TESTED SEPARATELY AND ALSO IN TANDEM CONFIGURATIONS. DATA COLLECTION INCLUDED POWER INPUT TO THE BREAKWATERS, CONTINUOUS WATER SURFACE PROFILES ON BOTH SIDES OF THE BREAKWATERS, AND CURRENT VELOCITY PROFILES PRODUCED BY EACH DEVICE. DATA ANALYSIS YIELDED WAVE STATISTICS AND ENERGY SPECTRA WHICH WERE EMPLOYED IN THE EVALUATION OF BREAKWATER PERFORMANCE. RESULTS SHOW THAT THE PNEUMATIC BREAKWATER IS SLIGHTLY MORE EFFECTIVE FOR ATTENUATING DEEP WATER WAVES THAN THE HYDRAULIC BREAKWATER UNDER THE SAME OPERATING CONDITIONS. BOTH BREAKWATER DEVICES TEND TO ACT AS LOW-PASS FILTERS TO A TRAIN OF WIND-GENERATED WAVES. TANDEM OPERATIONS PROVED LESS EFFICIENT THAN EITHER DEVICE OPERATING ALONE.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0077

COMMITTEE ON GOVERNMENT OPERATIONS. 1970.

OUR WATERS AND WETLANDS: HOW THE CORPS OF ENGINEERS CAN HELP PREVENT THEIR DESTRUCTION AND POLLUTION.

TWENTY-FIRST REPORT. U.S. GOVERNMENT PRINTING OFFICE, WASH. D.C. 18 PP.

THE CORPS OF ENGINEERS, WHICH IS CHARGED BY CONGRESS WITH THE DUTY TO PROTECT THE NATION'S NAVIGABLE WATERS, SHOULD, WHEN CONSIDERING WHETHER TO APPROVE APPLICATIONS FOR LANDFILLS, DREDGING AND OTHER WORK, INCREASE ITS CONSIDERATION OF ALL EFFECTS WHICH THE PROPOSED WORK WILL HAVE, NOT ONLY ON NAVIGATION, BUT ALSO ON CONSERVATION OF NATURAL RESOURCES, FISH AND WILDLIFE, AIR AND WATER QUALITY, ESTHETICS, SENIC VIEW, HISTORIC SITES, ECOLOGY AND OTHER PUBLIC INTEREST ASPECTS OF THE WATERWAY. CONGRESS CHARGES INADEQUATE PROTECTION OF SUBMERGED LANDS SHOREWARD OF THE 'HARBOR LINE', AND TOO FEW PUBLIC HEARINGS REGARDING SHORELINE ACTIVITIES TO WHICH CITIZENS ARE OPPOSED. THE CORPS SHOULD INSTRUCT ITS DISTRICT ENGINEERS, INVOLVED IN PERMIT REVIEW FOR FILLS, DREDGING OR OTHER WORK IN ESTUARIES, RIVERS OR OTHER NAVIGABLE WATERS, TO INCREASE EMPHASIS ON HOW THE WORK WILL AFFECT ALL ASPECTS OF THE PUBLIC INTEREST.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: LEGAL, DREDGE/FILL, BULKHEAD

****
REF. NO.-0434

COMMONWEALTH OF MASSACHUSETTS. 1976.

MASSACHUSETTS COASTAL ZONE MANAGEMENT PREVIEW: A SUMMARY.

COAST LINES 2(5):1-12.

THIS PAPER PRESENTS, FOR PUBLIC INFORMATION PURPOSES, A SUMMARY OF THE CONTENTS OF THE MASSACHUSETTS COASTAL ZONE MANAGEMENT PREVIEW. AMONG THE SUBJECTS BRIEFLY INTRODUCED AND DISCUSSED ARE: THE MARINE ENVIRONMENT, COASTAL HAZARDS, THE VISUAL ENVIRONMENT, PORTS AND HARBORS, RECREATION, ENERGY AND MANAGEMENT.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0210

CONDON, E. 1973.

COMPILATION OF STUDIES IN DREDGING, DREDGE SPOIL USAGE AND DISPOSAL.

MARINE ADVISORY PROGRAMS, OREGON STATE UNIV. MIMEO. 8 PP.

STUDIES OF DREDGING, SPOILS USAGE AND SPOILS DISPOSAL ARE LISTED BY TITLE. A LIST OF PEOPLE WORKING IN DREDGE SPOILS AREA AS OF JANUARY, 1973, IS ALSO INCLUDED.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: UNPUB

DESCRIPTORS: DREDGE/FILL, BIBLIOGRAPHY

****
REF. NO.-0529

CONNER, W.H. STONE, J.H. BAHR, L.M. BENNETT, V.R. DAY J.W., JR. TURNER, R.E. 1976.

OIL AND GAS USE CHARACTERIZATION, IMPACTS, AND GUIDELINES.

CENTER FOR WETLAND RESOURCES, LOUISIANA STATE UNIVERSITY, BATON ROUGE. SEA GRANT PUBL NO. LSU-T-76-006. 148 PP.

OF ALL THE ACTIVITIES AFFECTING THE ENVIRONMENT OF THE BARATARIA BASIN, THE MINERAL EXTRACTION INDUSTRY (PRIMARILY OIL AND GAS) IS THE MOST EXTENSIVE. IN ORDER TO BETTER UNDERSTAND THE IMPACTS ASSOCIATED WITH MINERAL EXTRACTION AND TO HELP IN THE DESIGNING AND IMPLEMENTATION OF MANAGEMENT ALTERNATIVES, THIS REPORT PRESENTS A NONTECHNICAL SURVEY OF THE PHASES OF OPERATION, FROM EXPLORATION TO ABANDONMENT, INVOLVED IN THE INDUSTRY. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: BIO

REF. NO.-0529 (CONTINUED)

TYPE OF REFERENCE: PUR

DESCRIPTORS: DREDGE/FILL, CH 3, HABITAT, SEDIMENTATION, BENTHOS, FISH, SHELLFISH, SPAWNING, AQUATIC PLANTS

****
REF. NO.-0004

COPELAND, B.J. 1970.

ESTUARINE CLASSIFICATION AND RESPONSES TO DISTURBANCES.

TRANS. AMER. FISH. SOC. 99(4): 826-835.

THERE ARE MANY SIMILARITIES AMONG ESTUARIES OF A GIVEN TYPE, WHETHER THE ESTUARY IS LOCATED ON THE EAST, WEST OR GULF COAST OF THE UNITED STATES. BASED UPON THESE SIMILARITIES, THE ESTUARINE SYSTEMS OF THE UNITED STATES HAVE BEEN CLASSIFIED INTO TYPES. THE GENERAL TYPES, BASED ON BROAD SIMILARITIES INCLUDE FIVE MAIN CATEGORIES: 1) NATURALLY STRESSED SYSTEMS OF WIDE LATITUDINAL RANGE; 2) NATURAL TROPICAL SYSTEMS OF HIGH DIVERSITY; 3) NATURAL TEMPERATE SYSTEMS WITH STRONG SEASONAL PROGRAMMING; 4) NATURAL ARCTIC SYSTEMS WITH ICE STRESS; AND 5) EMERGING NEW SYSTEMS ASSOCIATED WITH MAN. THE RESPOONSE TO DISTURBANCES IS RELATED TO THE SYSTEM TYPE. THOSE SYSTEMS ALREADY SUBJECTED TO ENERGY-REQUIRING STRESSES ARE MORE LIKELY TO RESIST CHANGES THAN THOSE (SUCH AS TROPICAL SYSTEMS) ADAPTED TO RELATIVELY CONSTANT ENVIRONMENTS. THERE IS DIFFERENTIAL RESPONSE TO VARIOUS DISTURBANCES, WHICH IS RELATED TO THE DOMINANT STRUCTURE OF THE SYSTEM. FOR EXAMPLE, A SYSTEM SUPPORTED BY A GRASS BOTTOM WILL BE MORE AFFECTED BY A 'BOTTOM-COVERING' WASTE THAN ONE RELYING UPON MID-WATER PLANKTON FOR PRIMARY SUPPORT. NEW COASTAL SYSTEMS ARE ARISING FROM THE DOMINANCE OF OLD SYSTEMS BY MAN-MADE WASTES. WHERE WASTE INPUTS ARE LARGE AND CONSTANT, THE EMERGING NEW SYSTEM IS ONE THAT CAN BE DESCRIBED AND IS AS MUCH AN ECOLOGICAL SYSTEM AS THOSE EVOLVED THROUGH MANY YEARS OF ADAPTATION AND EVOLUTIONARY HISTORY. BECAUSE OF THE ABSENCE OF LONG PERIODS FOR ADAPTATION AND EVOLUTION, THESE NEW EMERGING SYSTEMS ARE ERRATIC AND UNSTABLE. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUR

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0016

COPELAND, B.J. 1974.

IMPOUNDMENT SYSTEMS.

PP. 168-171 IN H.T. ODUM, B.J. COPELAND AND E.A. MCMAHAN, EDS. COSTAL ECOLOGICAL SYSTEMS OF THE UNITED STATES. VOL. III. THE CONSERVATION FOUNDATION, WASHINGTON D.C.

THE EFFECTS OF ISOLATION OF PART OR ALL OF AN ESTUARY INCLUDE DECREASED SALINITY, NUTRIENTS, ORGANIC MATTER, AND CIRCULATION MAINTENANCE OF OPEN CHANNELS. THREE BRIEF EXAMPLES OF THE RESULTS OF ISOLATION BY IMPOUNDMENT ARE BRIEFLY DISCUSSED. APPARENTLY SOME SMALL BAYS ARE

REF. NO.-0016 (CONTINUED)

DEPENDENT UPON CIRCULATION ENERGIES PROVIDED BY LARGER ADJACENT SYSTEMS FOR CIRCULATION AND FLUSHING THROUGH PASSES AND OPENINGS FOR THE MAINTENANCE OF HIGH PRODUCTIVITY.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: BULKHEAD, PRODUCTIVITY, SEDIMENTATION, CR 3, DREDGE/FILL

****
REF. NO.-0027

CORLISS, J. TRENT, L. 1971.

COMPARISON OF PHYTOPLANKTON PRODUCTION BETWEEN NATURAL AND ALTERED AREAS IN WEST BAY, TEXAS.

FISH. BULL. 69(4): 829-832.

PHYTOPLANKTON PRODUCTION WAS COMPARED BETWEEN AN UNDREDGED MARSH AREA, A BAY AREA, AND AN ADJACENT MARSH AREA ALTERED BY CHANNELIZATION, BULKHEADING, AND FILLING. AVERAGE GROSS PRODUCTION (MG CARBON/LITER/DAY) IN THE ALTERED AREA (CANALS) WAS 8, HIGHER THAN IN THE MARSH AND 48, HIGHER THAN IN THE BAY DURING JUNE, JULY, AND AUGUST 1969. GROSS AND NET PRODUCTION WERE SIGNIFICANTLY HIGHER IN THE CANALS AND MARSH THAN IN THE BAY; DIFFERENCES BETWEEN THE CANALS AND MARSH WERE NOT SIGNIFICANT. BULKHEADING IS USED IN CONJUNCTION WITH CANALIZING FOR HOUSING DEVELOPMENTS. (MODIFIED AUTHOR ABSTRACT)

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: BULKHEAD, PLANKTON, PRODUCTIVITY, CR 3

****
REF. NO.-0291

COTTAM, C. 1968.

RESEARCH NEEDS IN ESTUARINE AREAS OF THE GULF COAST.

PP. 227-240 IN: J.D. NEWSOM (ED). PROC. OF THE MARSH AND ESTUARY MANAGEMENT SYMP. BATON ROUGE, LA.

THIS IS AN OVERVIEW OF GULF COAST ESTUARIES, STRESSING LOSS OF VALUABLE ESTUARINE ACREAGE AND DELVING INTO THE PROBLEMS AND RESEARCH NEEDS FOR THESE AREAS. A TOTAL OF 7.1% OF THE UNITED STATES ESTUARIES HAVE ALREADY BEEN LOST TO FILLING. ENDANGERED AND RARE SPECIES ARE DISCUSSED IN REFERENCE TO ESTUARINE AREAS. POLLUTION, INCLUDING SHELL DREDGING AND THE ASSOCIATE SILTATION PROBLEMS ARE TOUCHED UPON AND NINETEEN SPECIFIC AREAS REQUIRING FUTURE RESEARCH ARE GIVEN.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

REF. NO.-0291 (CONTINUED)

DESCRIPTORS: BIRDS, DREDGE/FILL, PRODUCTIVITY, CR 3, CR 4, RESEARCH NEEDS

****
REF. NO.-0192

COURSEY, G.E. 1973.

NEW SHAPE IN SHORE PROTECTION.

CIVIL ENGINEERING 43(12):68-71.

THE HUMBOLDT BAY HARBOR IS SUBJECT TO WINTER WAVES REACHING 40 FEET. THIS STRESS BROKE DOWN THE CONVENTIONAL RUBBLE MOUND JETTIES WHICH PROTECT THE HARBOR ENTRANCE, AND CONTINUOUS MAINTENANCE AND RECONSTRUCTION WAS REQUIRED. DOLOSSE, A NEW FORM OF JETTY PROTECTION, WERE PLACED ON THE JETTY SLOPES IN 1972. DOLOSSE ARE INTERLOCKING STEEL CONCRETE COMPONENTS (SHAPED SOMEWHAT LIKE CHILDREN'S 'JACKS'). TESTS SHOWED THAT FIBROUS STEEL REINFORCEMENT ADDS TO THE INTEGRITY OF DOLOSSE. AFTER ONE WINTER THE INSTALLATION SHOWED NO VISIBLE DAMAGE OR MOVEMENT, AND IT WAS CONCLUDED THAT THE USE OF THE DOLOS IS AN ADVANCEMENT IN JETTY PORTECTION. BOTH AERIAL AND VISUAL MONITORING OF THE DOLOSSE WILL CONTINUE.

NATURE OF REFFRENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: JETTY, PROTECT, CR 1

****
REF. NO.-0093

COURTENAY, W.R. HERREMA, D.J. THOMPSON, M.J. AZZINARO, W.P. MONTFRANS, J.V. 1974.

ECOLOGICAL MONITORING OF BEACH EROSION CONTROL PROJECTS, BROWARD COUNTY, FLORIDA, AND ADJACENT AREAS.

U.S. ARMY CORPS OF ENGINEERS. CERC TECH.MEMO. NO. 41. 88 PP.

ECOLOGICAL MONITORING OF ALGAE, INVERTEBRATES, AND FISHES WAS CONDUCTED IN THE SOUTHEAST FLORIDA COAST IN CONNECTION WITH OFFSHORE DREDGING AND BEACH NOURISHMENT PROJECTS. THE POMPANO BEACH TO LAUDERDALE-BY-THE- SEA SEGMENT OF THE BROWARD COUNTY BEACH EROSION CONTROL PROJECT WAS SURVEYED FROM 3 AUGUST 1970 TO 1 SEPTEMBER 1972. NO ADVERSE ECOLOGICAL EFFECTS CAN BE ATTRIBUTED TO THIS BEACH RESTORATION PROJECT. A COMMUNITY BEACH NOURISHMENT PROJECT AT HALLANDALE, BROWARD COUNTY, WAS STUDIED FROM 28 AUGUST 1971 TO 1 SEPTEMBER 1972. DAMAGE TO REEFS NEAR BORROW AREAS FROM SEDIMENTATION AND PHYSICAL DESTRUCTION BY DREDGING EQUIPMENT WAS FOUND. THREE OTHER STUDY AREAS, DANIA BEACH AND DEERFIELD BEACH IN BROWARD COUNTY AND SOUTH LAKE NORTH (BOYNTON) INLET IN PALM BEACH COUNTY WERE SURVEYED FROM 30 OCTOBER 1971 TO 1 SEPTEMBER 1972. DREDGE- AND-FILL OPERATIONS ARE PROPOSED FOR EACH OF THESE AREAS. ECOLOGICAL DATA ON PRESENT CONDITIONS ARE RECORDED FROM THESE SITES. (NTIS ABSTRACT)

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

REF. NO.-0093 (CONTINUED)

DESCRIPTORS: CR 4, EROSION, DREDGE/FILL, INVERTEBRATES, FISH, BENTHOS

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REF. NO.-0364

CRONIN, L.E. GUNTER, G. HOPKINS, S.H. 1971.

EFFECTS OF ENGINEERING ACTIVITIES ON COASTAL ECOLOGY.

REPORT TO THE OFFICE OF THE CHIEF OF ENGINEERS, U.S. ARMY. 48 PP.

A TEAM OF CONSUTANTS MADE A BROAD ANALYSIS OF THE EFFECTS THIRTEEN TYPES OF ENGINEERING ACTIVITIES HAVE ON THE ECOLOGY OF COASTAL AREAS. STUDIES WHICH WOULD SIGNIFICANTLY IMPROVE UNDERSTANDING OF THESE EFFECTS ALSO WERE IDENTIFIED. THE FOLLOWING TYPES OF ENGINEERING ACTIVITIES WERE CONSIDERED: DREDGING, FILLING, DAMS, LEVEES AND SPILLWAYS, DIVERSIONS, JETTIES AND GROINS, BEACH NOURISHMENT, LAND-CUT CANALS, WEED CONTROL, HURRICANE BARRIERS, FINGER-TYPE DEVELOPMENTS, OCEAN WAS TO DISPOSAL AND WETLANDS MODIFICATION.

NATURE OF REFFERENCE: GENERAL

TYPE OF REFERFNCE: GOV REP

DESCRIPTORS: DREDGE/FILL, JETTY, GROIN, FISH, INVERTEBRATES, SHELLFISH, AQUATIC PLANTS, NURSERY

****
REF. NO.-0421

CRONIN, L.E. 1967.

THE ROLE OF MAN IN ESTUARINE PROCESSES.

PP. 667-689 IN G.H. LAUFF, ED. ESTUARIES. AAAS PUBL. 83.

THE EFFECTS OF HUMAN ACTIVITIES ON ESTUARIES IS DISCUSSED RELATIVE TO MODIFICATION OF RIVER FLOW, CHEMICAL POLLUTION, GEOLOGICAL PROCESSES, BIOLOGICAL PROCESSES, AND PHYSICAL PROCESSES. A NUMBER OF STUDIES ARE DESCRIBED DEALING WITH THERMAL ADDITIONS, SALINITY CHANGES, LAND DEVELOPMENT, ADDITION OF NUTRIENT CHEMICALS, RADIOACTIVE WASTES AND PULP WASTES. THE RESULTS OF HUMAN PREDATION (E.G. FISHING) AND INTRODUCTION OF NEW SPECIES ARE DISCUSSED. INTELLIGENT MANAGEMENT IS NECCESSARY IN THE FUTURE IN ORDER TO PREVENT IRREVERSIBLE DEGRADATION OF ESTUARIES AND SELECTED AREAS SHOULD BE PRESERVED AS UNDISTURBED RESEARCH CENTERS.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUR

DESCRIPTORS: HABITAT, CUMULATIVE EFFECTS, PRODUCTIVITY

****
REF. NO.-0551

CRONIN, L.E. GUNTER, G. HOPKINS, S.H. 1969.

REF. NO.-0551 (CONTINUED)

EFFECTS OF ENGINEERING ACTIVITIES ON COASTAL ECOLOGY.

INTERIM REPORT TO THE OFFICE OF THE CHIEF OF ENGINEERS, U.S. ARMY. MIMEO. 40 PP.

AN INTERIM REPORT IS PRESENTED OF A TENTATIVE LISTING OF PERTINENT CORPS- RELATED ACTIVITES, WITH PRELIMINARY ANALYSIS AND EVALUATION OF THE ECOLOGICAL EFFECTS. THE ACTIVITES INCLUDED DREDGING, FILLING, DAMS, DIVERSIONS, JETTIES AND GROINS, BEACH NOURISHMENT, LAND-CUT CANALS, WEED CONTROL, HURRICANE BARRIERS, FINGER-TYPE DEVELOPMENTS, AND OCEAN WASTE DISPOSAL. ALSO, STUDIES WHICH WOULD SIGNIFICANTLY IMPROVE COMPREHENSION, AND THEREFORE PREDICTION, OF THE EFFECTS OF COASTAL ENGINEERING CHANGES ARE LISTED WITH SUPPLEMENTARY COMMENTS. SUGGESTED STUDIES INCLUDE THE EFFECTS OF SALINITY, EFFECTS OF SEDIMENTS, EFFECTS OF ENGINEERING ON ENVIRONMENT, BIOTA OF NEW BOTTOMS, EFFECTS OF SPOIL BANKS, CHANGES IN BORROW PITS, EFFECTS OF JETTIES, EFFECTS OF HURRICANE BARRIERS, AND EFFECTS OF LAND-CUT CANALS ADDITIONAL STUDY AND LITERATURE SEARCH ARE NECESSARY

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: GOV REP

DESCRIPTORS: RESEARCH NEEDS, DREDGE/FILL, JETTY, GROIN, SEDIMENTATION, BENTHOS, FISH, SHELLFISH, PRODUCTIVITY, SPAWNING, NURSERY

****
REF. NO.-0250

CROOKE, R.C. 1955.

RE-ANALYSIS OF EXISTING WAVE FORCE DATA ON MODEL PILES.

U.S. ARMY CORPS OF ENGINEERS. BEB TECH. MEMO. NO. 71. 19 PP.

ALL OF THE PAST PUBLISHED REPORTS ON WAVE FORMS CONTAIN IRRECONCILABLE INCONSISTENCIES IN THE METHODS OF DERIVING THE FORCES PRODUCED BY THE ACTION OF WAVES ON PILES AND/OR OTHER STRUCTURAL MEMBERS. NEW METHODS AS OUTLINED BY IVERSEN AND BALENT WERE USED TO RECONCILE SOME OF THESE INCONSISTENCIES.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0297

DAHL, B.E. FALL, B.A. LOHSE, A. APPAN, S.G. 1975.

CONSTRUCTION AND STABILIZATION OF COASTAL FOREDUNES WITH VEGETATION: PADRE ISLAND, TEXAS.

U.S. ARMY CORPS OF ENGINEERS. CERC MISC. PAPER 9-75. 188 PP.

EXPERIMENTS WERE CONDUCTED FROM 1969 TO 1974 ON PADRE ISLAND, TEXAS, TO ESTABLISH TECHNICAL

REF. NO.-0297 (CONTINUED)

SPECIFICATIONS AND METHODOLOGIES FOR THE USE OF BEACH GRASSES TO CONSTRUCT AND STABILIZE FOREDUNES AS STORM SURGE BARRIERS ALONG THE GULF COAST. CONCLUSIONS ARE BASED ON 2.5 LINEAR MILES OF EXPERIMENTAL PLOTS, CONSISTING OF BEACH PLANTINGS AND FENCE-BUILT DUNES. ADDITIONAL EXPERIMENTS ON THE EFFECTS OF NUTRIENTS AND SALINITY ON BEACH GRASS GROWTH WERE CONDUCTED IN A GREENHOUSE. BITTER PANICUM AND SEA OATS WERE THE BEST ADAPTED SPECIES FOR BEACH PLANTINGS. THE MOST SUCCESSFUL METHOD OF ESTABLISHING A VEGETATED DUNE RIDGE WAS TRANSPLANTING THESE GRASSES ON THE BACKSHORE, WHERE THEY TRAPPED, GREW THROUGH, AND STABILIZED ACCUMULATING SAND. BARREN DUNES BUILT WITH SAND FENCING WERE STABILIZED WITH GRASSES, BUT THE PROCESS WAS MORE DIFFICULT AND COSTLY. MOST BEACH PLANTINGS WERE MADE WITH A TOBACCO TRANSPLANTER, WITH SINGLE CULMS SPACED ON 2-FOOT CENTERS AND PLANTED OR SEATED 8 INCHES DEEP. A 50-FOOT-WIDE PLANTING TRAPPED ALL AVAILABLE BLOWING SAND. TRANSPLANT SURVIVAL OF 20 PERCENT OR GREATER WAS SUFFICIENT FOR MAXIMUM DUNE GROWTH AFTER THE FIRST YEAR. BEACH PLANTINGS ACCUMULATED AN AVERAGE OF 3.3 TO 5.2 CUBIC YARDS OF SAND PER LINEAR FOOT OF BEACH PER YEAR. IN 5 YEARS, A SEA OATS PLANTING CREATED A DUNE 11.4 FEET HIGH (15.4 FEET MSL) WHICH CONTAINED 24.9 YARDS PER CUBIC FOOT OF BEACH. TIME-COSTS FOR ESTABLISHING A 1-MILE-LONG, 50-FOOT-WIDE BEACH PLANTING (2-FOOT CENTERS) OF SEA OATS AND BITTER PANICUM WERE 500 AND 287 MAN-HOURS, RESPECTIVELY. BOTH GRASSES WERE SUCCESSFULLY TRANSPLANTED YEAR ROUND, BUT WINTER THROUGH SPRING WAS THE MOST FAVORABLE PERIOD. TRANSPLANT SURVIVAL WAS INFLUENCED BY MANY FACTORS, BUT MOSTLY BY SOIL MOISTURE AND SALINITY. FERTILIZATION OF PLANTING DURING THE FIRST YEAR IMPROVED INITIAL SAND-TRAPPING ABILITY, BUT SUBSEQUENT FERTILIZATION WAS UNNECESSARY. POSTPLANTING IRRIGATION DID NOT IMPROVE TRANSPLANT SURVIVAL, BUT PREPLANTING IRRIGATION WAS ESSENTIAL FOR FENCE-BUILT DUNES.
(MODIFIED AUTHOR ABSTRACT)

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

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REF. NO.-0217

DAIBER, F.C. 1975.

ECOLOGICAL EFFECTS UPON ESTUARIES RESULTING FROM LAGOON CONSTRUCTION, DREDGING, FILLING, AND BULKHEADING.

REPT. TO DIV. FISH AND WILDL., DEPT. NAT.RES. AND ENVIRON. CONTROL, STATE OF DELAWARE. 197 PP.

BENTHIC COMMUNITIES OF TIDAL CREEKS, AREAS OF THE OPEN BAY, AND DREDGED LAGOONS IN REHOBOTH, INDIAN RIVER, AND LITTLE ASSAWOMAN BAYS, DELAWARE WERE STUDIED IN AN ATTEMPT TO EVALUATE THE BIOTIC AND ENVIRONMENTAL CONDITIONS AND QUALITY OF THE DREDGED AREAS. SEVERAL ENVIRONMENTAL PARAMETERS: SALINITY, TEMPERATURE, AND DISSOLVED OXYGEN OF THE BOTTOM WATER, WERE MEASURED TO RELATE BENTHIC COMMUNITY STRUCTURE TO THE PHYSICAL AND CHEMICAL CONDITIONS OF THE ENVIRONMENT. LAGOON STATIONS, AS A GROUP, WERE FOUND TO HAVE LOWER NUMBERS OF INDIVIDUALS AND SPECIES AND LOWER SPECIES EVENNESS AND DIVERSITY THAN MARSH OR BAY STATIONS. THESE DIFFERENCES WERE ONLY SIGNIFICANT DURING THE SUMMER AND FALL. (MODIFIED AUTHOR ABSTRACT)

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: UNPUB

REF. NO.-0217 (CONTINUED)

DESCRIPTORS: CR 6, DREDGE/FILL, BENTHOS, BULKHEAD, PLANKTON, HABITAT

****
REF. NO.-0209

DALE, V. 1976.

LIST OF PUBLICATIONS OF THE U.S. ARMY ENGINEER WATERWAYS EXPERIMENT STATION.

SPECIAL PROJECTS BRANCH, TECHNICAL INFORMATION CENTER, VICKSBURG, MISS. MAY. UNPAGED.

PUBLICATIONS ISSUED THROUGH DECEMBER 1975 BY THE U.S. ARMY ENGINEER WATERWAYS EXPERIMENT STATION ARE LISTED AND INDEXED ACCORDING TO THE KEY-WORD-OUT-OF-CONTEXT METHOD.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: BIBLIOGRAPHY

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REF. NO.-0458

DANTIN, E.J. WHITEHURST, C.A. DURHIN, W.T. 1974.

AN INVESTIGATION OF ENVIRONMENTAL FACTORS ASSOCIATED WITH THE CURRENT AND PROPOSED JETTY SYSTEMS AT BELLE PASSE, LOUSIANA.

LOUISIANA STATE UNIVERSITY. NTIS REPORT N75-15253. 40 PP.

THE EXISTING JETTY SYSTEM AT BELLE PASSE WAS EXAMINED IN HISTORICAL PERSPECTIVE TO DETERMINE ITS EFFECT ON THE AREA'S LITTORAL CURRENTS AND BEACH EROSION. PRESENT FLOW PATTERNS AND EROSION RATES WERE ALSO STUDIED USING AERIAL PHOTOGRAPHS, MAPS, PERIODIC HYDRAULIC MEASUREMENTS, GROUND OBSERVATIONS, AND PHYSICAL MEASUREMENTS OF BEACH EROSION. A SCALE MODEL WAS CONSTRUCTED TO INVESTIGATE FLOW PATTERNS AND VELOCITIES. THE EXISTING JETTY WAS FOUND TO HAVE RETARDED EROSION.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: CR 3, JETTY, LITTORAL PROCESSES, EROSION

****
REF. NO.-0195

DARNELL, R.M. 1971.

THE WORLD ESTUARIES-ECOSYSTEMS IN JEOPARDY.

INTECOL. BULL. 3:3-20.

REF. NO.-0195 (CONTINUED)

A DISCUSSION OF THE ESTUARINE SYSTEM AND THE EFFECTS OF THERMAL LOADING, CHANGES IN LAND AND WATER USE PATTERNS AND CHEMICAL POLLUTION IS PRESENTED. THE AUTHOR STRESSES THAT IF THE WORLD'S ESTUARINE AND COASTAL MARINE BIOLOGICAL RESOURCES ARE TO BE SALVAGED, IMMEDIATE AND SIGNIFICANT STEPS MUST BE TAKEN TO PROVIDE INFORMATION REQUISITE TO UNDERSTANDING THE SYSTEMS AND TO INTERPRET THE KNOWN INFORMATION IN THE CONTEXT OF EACH LOCAL SITUATION. SEVERAL RECOMMENDATIONS ARE MADE FOR ACCOMPLISHING THIS GOAL.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUR

DESCRIPTORS: DREDGE/FILL, HABITAT, CUMULATIVE EFFECTS

****
REF. NO.-0247

DARNELL, R.M. 1976.

IMPACTS OF CONSTRUCTION ACTIVITIES IN WETLANDS OF THE UNITED STATES.

U.S. ENVIRONMENTAL PROTECTION AGENCY, ECOLOGICAL RES. SERIES PUBL. EPA-600/3 -76-045. 392 PP.

THE PRIMARY TYPES OF CONSTRUCTION ACTIVITY WHICH SEVERELY IMPACT WETLAND ENVIRONMENTS OF THE UNITED SATES INCLUDE: FLOODPLAIN SURFACING AND DRAINAGE, MINING, IMPOUNDMENT, CANALIZATION, DREDGING AND CHANNELIZATION, AND BANK AND SHORELINE CONSTRUCTION. EACH TYPE OF CONSTRUCTION ACTIVITY IS ATTENDED BY AN IDENTIFIABLE SUITE OF PHYSICAL AND CHEMICAL ALTERATIONS OF THE WETLAND ENVIRONMENT WHICH MAY EXTEND FOR MANY MILES FROM THE SITE OF CONSTRUCTION AND MAY PERSIST FOR MANY YEARS. IN TURN, EACH TYPE OF PHYSICAL AND CHEMICAL MODIFICATION HAS BEEN SHOWN TO INDUCE A DERIVED SET OF BIOLOGICAL EFFECTS, MANY OF WHICH ARE PREDICTABLE, IN GENERAL, IF NOT IN SPECIFIC DETAIL. THE MOST ENVIRONMENTALLY DAMAGING EFFECTS OF CONSTRUCTION ACTIVITIES IN WETLAND AREAS, IN ORDER OF IMPORTANCE, ARE: DIRECT HABITAT LOSS, ADDITION OF SUSPENDED SOLIDS AND MODIFICATION OF WATER LEVELS AND FLOW REGIMES. MAJOR CONSTRUCTION-RELATED IMPACTS ALSO DERIVE FROM ALTERED WATER TEMPERATURE, PH, NUTRIENT LEVELS, OXYGEN, CARBON DIOXIDE, HYDROGEN SULFIDE, AND CERTAIN POLLUTANTS SUCH AS HEAVY METALS, RADIOACTIVE ISTOPES, AND PESTICIDES. (MODIFIED AUTHOR ABSTRACT)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUR

DESCRIPTORS: PRODUCTIVITY, SEDIMENTATION, HABITAT, BRIDGE, CAUSEWAY, BREAKWATER, JETTY, DREDGE/FILL, BULKHEAD, GROIN, HARBOR, PILING, PIER

****
REF. NO.-0509

DAVIES, D.S. AXELROD, E.W. O'CONNOR, J.S. 1973.

EROSION OF THE NORTH SHORE OF LONG ISLAND.

MARINE SCIENCES RESEARCH CENTER, STATE UNIV. OF N.Y., STONY BROOK. TECH. REP. NO. 18. 101 PP.

REF. NO.-0509 (CONTINUED)

THE INSTABILITY OF BEACHES AND BLUFFS OF THE NORTH SHORES OF NASSAU AND SUFFOLK COUNTIES IS DESCRIBED OVER GEOLOGIC TIME AND AS INFLUENCED BY INDIVIDUAL STORMS. A DETAILED CASE HISTORY IS PRESENTED OF THE GEOLOGICAL PROCESSES INFLUENCING THE CRANE NECK REGION NORTH OF STONY BROOK VILLAGE. THE FEATURES OF BEACHES AND THE HISTORICAL RATES OF EROSION OR ACCRETION AT 158 LOCATIONS ARE SUMMARIZED IN A BEACH UTILITY INDEX DESIGNED TO GUIDE THE MOST RATIONAL USE OF SPECIFIC SHORELINE REACHES. IN ADDITION TO ESTIMATES OF EROSION AND ACCRETION RATES, THIS UTILITY INDEX SUMMARIZES AT SPECIFIC LOCATIONS THE NATURAL BARRIERS TO EROSION, BEACH WIDTH, SEDIMENT GRAIN SIZE OF THE FOREBEACH AND BACKBEACH, AND ACCESSIBILITY TO THE BEACH. A NUMBER OF RECOMMENDATIONS ARE MADE TO REDUCE THE LIKELIHOOD OF FATALITIES AND PROPERTY DAMAGE IN THE SHORE ZONE BY RESTRICTING DEVELOPMENT IN HAZARDOUS AREAS. THE RECOMMENDATION IS ALSO MADE THAT FUTURE ENGINEERING STRUCTURES DESIGNED TO STABILIZE PORTIONS OF THE BEACH SHOULD NOT BE CONSTRUCTED WITHOUT DETAILED KNOWLEDGE OF THEIR INFLUENCES UPON ADJACENT PROPERTY.
(MODIFIED AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: EROSION, JETTY, GROIN, BULKHEAD, REVETMENT, CR 7

****
REF. NO.-0396

DAVIS, G. 1977.

CANALS, CORAL REEFS, SHRIMP, LOBSTER, AND SALINITY COMMENTS.

MARINEBIOL. EVERGLADES NATL. PARK, HOMESTEAD, FL. PERS. COMM.

SINCE 1940 THE ESTUARINE AREAS OF THE EVERGLADES HAVE EXPERIENCED SALINITY INCREASE FROM 0-12 PPT TO 25-40 PPT AND FLORIDA BAY SALINITIES ARE STAYING HIGH FOR A GREATER PORTION OF THE YEAR. SOME OF THIS MAY BE DUE TO CANALS ACROSS THE EVERGLADES. REDUCED FLOWS THROUGH THE KEYS FROM FLORIDA BAY MAY BENEFIT THE CORAL REEFS IN THE NORTHERN KEYS PINK SHRIMP AND SPINY LOBSTER ARE DEPENDENT ON FLORIDA BAY AS A NURSERY AND SEVERAL SPORT FISH ARE ALSO DEPENDENT ON THE BAY.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: INT

DESCRIPTORS: CR 4, INVERTEBRATES, NURSERY, FISH

****
REF. NO.-0472

DAVIS, J.H. 1957.

DUNE FORMATION AND STABILIZATION BY VEGETATION AND PLANTINGS.

U.S. ARMY CORPS OF ENGINEERS. BEB TECH. MEMO. NO. 101. 47 PP.

THIS PUBLICATION DESCRIBES THE ADVANTAGES OF VEGETATION TO STABILIZE SAND DUNES IN THE COASTAL

REF. NO.-0472 (CONTINUED)

ZONE. EACH REGION OF THE U.S. COAST IS DISCUSSED IN TERMS OF BOTH NATIVE PLANT SPECIES AND SPECIES WHICH ARE SUCCESSFUL AS STABILIZING AGENTS. COSTS (1957) OF VARIOUS PLANTING PROGRAMS ARE DISCUSSED.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0544

DAVIS, J.H. 1956.

INFLUENCES OF MAN UPON COAST LINES.

PP. 504-521 IN W.L. THOMAS, ED. MAN'S ROLE IN CHANGING THE FACE OF THE EARTH. UNIV. CHICAGO PRESS, CHICAGO, ILL.

THE CURRENT AND HISTORICAL IMPACT OF MAN ON THE COASTAL ZONE IS GENERALLY DESCRIBED. IN TERMS OF TOTAL EFFECT ON COAST LINES, THE INDIRECT INFLUENCES OF NUMEROUS ACTIVITIES OF BOTH INLAND AND COASTAL MEN HAVE PROBABLY BEEN MORE IMPORTANT THAN THE DIRECT INFLUENCES OF MAN. EVIDENCES OF EXTENSIVE AND PROLONGED COASTLINE CHANGES INDICATE THAT MANY AGRICULTURAL AND OTHER SOIL-ALTERING PURSUITS OF BOTH INLAND AND COASTAL MEN HAVE INDIRECTLY ALTERED RATES OF PROGRADATION. GROINS, JETTIES, REVETMENTS, BULKHEADS, AND PILING ARE BRIEFLY MENTIONED AS MEANS TO SHORELINE PROTECTION. (NTIS ABSTRACT)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: GROIN, PROTECT, BULKHEAD, REVETMENT, PILING, JETTY

****
REF. NO.-0248

DAVIS, J.H., JR. 1975.

STABILIZATION OF BEACHES AND DUNES BY VEGETATION IN FLORIDA.

UNIVERSITY OF FLORIDA, GAINESVILLE. FLORIDA SEA GRANT PROGRAM REPORT NO.7. 53 PP.

THE PURPOSE OF THIS REPORT IS TO PROVIDE COASTAL STRAND PROPERTY OWNERS AND MANGERS WITH GUIDELINES FOR THE USE OF VEGETATION IN THE PROTECTION AND RESTORATION OF FLORIDA BEACHES AND DUNES. THIS VEGETATION IS DESCRIBED IN PART I OF THIS PUBLICATION, AND SOME METHODS OF USING PLANTS TO REPEAT THE NATURAL PROCESS OF DUNE FORMATION ARE CONSIDERED IN PART II.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

REF. NO.-0248 (CONTINUED)

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0539

DAVIS, R. UNDATED.

RAVAGED SAN FRANCISCO BAY.

PHOTOCOPY OF ARTICLE PROVIDED BY NMFS, LONG BEACH, CA.

THE HISTORY OF ENVIRONMENTAL DEGRADATION OF SAN FRANCISCO BAY IS DISCUSSED. INDUSTRIALIZATION, HOUSING DEVELOPMENTS, AND WATER POLLUTION PROBLEMS ARE REVIEWED IN CASE HISTORIES AND RELATED TO THE DECLINE OF VARIOUS WILDLIFE SPECIES.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0263

DAVIS, R.A. FINGLETON, W.G. PRITCHETT, P.C. 1975.

BEACH PROFILE CHANGES: EAST COAST OF LAKE MICHIGAN, 1970-72.

U.S. ARMY CORPS OF ENGINEERS. CERC MISC. PAPER NO. 10-75, 97 PP.

THE PRIMARY RESULT OF THIS FIELD STUDY OF BEACH CHANGES ON THE EASTERN SHORE OF LAKE MICHIGAN CONCERNED THE MOVEMENT OF THE BLUFFS OR THE EDGE OF THE TERRACE MARKING THE LANDWARD BOUNDRY OF THE BEACH. DATA COLLECTED EVERY 4 WEEKS FROM AUGUST 1970 TO AUGUST 1972 INDICATED RECESSION OR NO CHANGE AT EACH OF 17 PROFILE SITES ON A 250 MILE SEGMENT OF THE EAST COAST OF LAKE MICHIGAN. DURING THIS PERIOD, LAKE LEVELS WERE RISING FROM A MEAN OF 578.9 FEET ABOVE MEAN LEVEL (MWL) IN 1970 TO 579.7 FEET MWL IN 1972. THE MAXIMUM BLUFF EROSION AT ANY ONE SITE BETWEEN MONTHLY SURVEYS WAS 20 FEET AT PROFILE 4 IN JUNE 1972. VARIABLES AFFECTING THE RATE OF MOVEMENT OF THE BLUFF INCLUDE LAKE LEVELS, COMPOSITION OF THE BLUFF OR TERRACE, ORIENTATION AND STRAIGHTNESS OF SHORELINE, WAVE CLIMATE, MANMADE STRUCTURES, AND POSSIBLY LONG SHORE BARS. THERE WAS A LACK OF CORRELATION BETWEEN BLUFF EROSION AT NEARBY STATIONS, BUT EACH SITE VARIED SEASONALLY WITH MAXIMUM EROSION OCCURING IN LATE FALL WHEN STORM OCCURRENCE IS ALSO HIGH. SHORE ICE PROTECTED THE BEACHES IN WINTER EROSION RESUMED IN SPRING AT A REDUCED LEVEL. BEACH WIDTH FROM THE BASE OF THE BLUFF TO THE WATER LEVEL AT THE TIME OF THE SURVEY ALSO VARIED SEASONALLY, WITH BEACHES NARROW IN EARLY SUMMER WHEN LAKE LEVEL IS AT A MAXIMUM AND WIDER IN LATE FALL WHEN LAKE LEVEL IS AT A LOWER LEVEL. THE STUDY BEACHES WERE MOSTLY WELL-SORTED SAND (MEAN GRAIN SIZE BETWEEN 0.330 TO 0.189 MILLIMETERS OR 1.60 AND 2.40 PHI UNITS) WITH SOME GRAVEL AND HEAVY MINERAL CONCENTRATIONS. (NTIS ABSTRACT)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

REF. NO.-0263 (CONTINUED)

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0211

DEAN, C. 1977.

LOGGERHEAD TURTLES AFFECTED BY COASTLINE ACTIVITIES.

DIRECTOR, MARINE SCIENCE PROGRAM, UNIVERSITY OF SOUTH CAROLINA, COLUMBIA, SC. PERS. COMM.

BEACH NOURISHMENT AND HOUSING PROJECTS AFFECT LOGGERHEAD TURTLES ALONG THE CAROLINA COAST. SAND ARTIFICIALLY DEPOSITED ON BEACHES COVERS TURTLE NESTS. WHEN STRUCTURES ARE VISIBLE FROM BEACHES WHERE TURTLES NEST, THE LIGHTS AT NIGHT FRIGHTEN FEMALES AWAY SO THEY DO NOT BUILD NESTS AND LAY EGGS. WHEN EGGS HATCH, THE HATCHLINGS ARE ATTRACTED TOWARD THE LIGHTS AND AWAY FROM THE SEA. FURTHER RESEARCH IS NEEDED ON THIS SUBJECT.

NATURE OF REFERENCE: RIO

TYPE OF REFERENCE: INT

DESCRIPTORS: LITTORAL PROCESSES, NESTING, BEAUTIFY, DREDGE/FILL, CR 5, RESEARCH NEEDS, TURTLES

****
REF. NO.-0390

DEAN, J.M. 1975.

THE POTENTIAL USE OF SOUTH CAROLINA RICE FIELDS FOR AQUACULTURE.

BELLE W. BARUCH INST. FOR MARINE BIOLOGY AND COASTAL RESEARCH, COLUMBIA, SC.

A STUDY IS PRESENTED, OF THE PRODUCTIVITY OF SEVERAL MARSH SYSTEMS, WITH EMPHASIS ON TWO KINDS: THE UNDISTURBED SPARTINA ALTERNIFLORA MARSHES AND THE MARSHES THAT HAVE BEEN ALTERED. THE ECOLOGY OF THE RICE FIELD IS DISCUSSED, FOLLOWED BY A CONSIDERATION OF OYSTER CULTURE CONSIDERATIONS FOR MULTIPLE SPECIES CULTURE, A DISCUSSION OF PRIMARY PRODUCTION IN THE WATER, BIOMASS AND VEGETATION ANALYSIS, ACID WATER FORMATION ON MARSH SEDIMENT AND AN ANALYSIS OF FISH DIETS. A CONSIDERATION OF PRINCIPLES OF AQUACULTURE IS PRESENTED AND IT IS CONCLUDED THAT MORE RESEARCH IS NEEDED ON THE RICE FIELDS OF SOUTH CAROLINA

NATURE OF REFERENCE: RIO

TYPE OF REFERENCE: PUR

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0215

DEAN, R.G. HARLEMAN, D.R.F. 1966.

REF. NO.-0215 (CONTINUED)

INTERACTION OF STRUCTURES AND WAVES.

PP. 341-404 IN: R.G. DEAN AND D.R.F. HARLEMAN. ESTUARY AND COASTLINE HYDRODYNAMICS. MCGRAW-HILL BOOK COMPANY, INC. NEW YORK.

AN UNDERSTANDING OF THE INTERACTIONS OF STRUCTURES AND WAVES HAS DEVELOPED IN THE PAST DECADE THROUGH ANALYTIC STUDIES, LABORATORY INVESTIGATIONS, AND FULL-SCALE MEASUREMENTTS IN THE OCEAN ENVIRONMENT. A DISCUSSION OF WAVE FORCES ON RIGID CIRCULAR MEMBERS AND IMPORTANT DESIGN CONSIDERATIONS ARE PRESENTED. RESULTS RELATING TO WAVE FORCES ON BREAKWATERS AND SEAWALLS, AND DESCRIPTIONS OF SOME OF THE RESULTS AVAILABLE PERTAINING TO THE INTERACTIONS OF WAVES AND FIXED OR MOORED OBJECTS NEAR THE SURFACE OR OCEAN BOTTOM ALSO ARE GIVEN

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUR

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0049

DEMORY, D. 1977.

SAND MOVEMENT ON THE OREGON COAST.

BIOLOGIST, OREGON DEPARTMENT OF FISH AND WILDLIFE, NEWPORT, OR. PERSONAL COMMUNICATION.

THIS PERSONAL INTERVIEW YEILDED INFORMATION ON EROSION, ACCRETION AND SHORELINE CHANGES ON THE OREGON COAST OVER THE PAST SEVERAL YEARS. MANY OF THE CHANGES ARE ALMOST CERTAINLY ASSOCIATED WITH DREDGING ACTIVITIES, JETTY CONSTRUCTION OR EXTENSION, AND OTHER ACTIVITIES IN THE SHORELINE AREA. STUDIES ARE IN PROGRESS WHICH MEASURE ELEVATIONS OF SAND DUNES IN THE TILLAMOOK AREA AND THERE APPEAR TO BE DIFFERENCES IN SEASONAL VARIATIONS CAUSED BY JETTY INFLUENCES ON LONGSHORE TRANSPORT.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: INT

DESCRIPTORS: DREDGE/FILL, JETTY, CR 1, LITTORAL PROCESSES, EROSION

****
REF. NO.-0432

DEN UYL, R.B. 1974.

THE CAUSES AND SOLUTIONS TO SHORELINE EROSION ON LAKE MICHIGAN.

HONORS THESIS. LAWRENCE UNIVERSITY, APPLETON, WI. 73 PP.

THOUGH EIGHTY-FIVE PERCENT OF GREAT LAKES SHORELINE IS PRIVATELY OWNED, INFORMATION CONCERNING SHORE PROTECTION MEASURES IS SELDOM WRITTEN FOR THE LAYMAN. THIS THESIS EXAMINES VARIATIONS IN

REF. NO.-0432 (CONTINUED)

COASTAL CONFIGURATION AND RELATES THEM TO DIFFERENT SEDENTARY ENVIRONMENTS ALONG LAKE MICHIGAN SHORES. THOUGH NOT WRITTEN FOR INDIVIDUALS LACKING BACKGROUND IN COASTAL PROCESSES, IT DOES INCLUDE CHARTS THAT ARE A SUMMATION AND ORGANIZATION OF THE BODY OF INFORMATION CONTAINED WITHIN THE TEXT. THESE CHARTS ARE INTENDED FOR ANYONE INTERESTED IN SOLUTIONS TO THE PROBLEM OF EROSION ON LAKE MICHIGAN.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: THESIS

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0072

DENT, E.J. 1931.

SAND MOVEMENT AND BEACH EROSION.

CIVIL ENG. 1(9):821-826.

INCREASING USAGE OF EXISTING BEACHES AND THE INCREASING VALUE OF SHORE PROPERTY JUSTIFY EXPENDITURES FOR MORE SUBSTANTIAL AND MORE ATTRACTIVE PROTECTION WORKS. METHODS OF MAINTAINING THE STABILITY OF BEACHES MUST BE CONSIDERED NOT ONLY FROM AN ECONOMIC, BUT ALSO FROM AN ESTHETIC POINT OF VIEW. THE COST OF JETTIES AND SEA WALLS DESIGNED TO REDUCE WASTAGE OF BEACH MATERIALS MAY EXCEED THAT OF REPLACING THE LOSS BY ARTIFICIAL MEANS, AND THE SECOND METHOD MAY CREATE A MORE SIGHTLY AND USEFUL BEACH. WHERE EXPENDITURES FOR REPLACING THE WASTE ARE IN EXCESS OF THOSE FOR BUILDING PROTECTIVE STRUCTURES, THE BEAUTY AND UTILITY OF THE BEACH TO BE MAINTAINED MUST ALSO BE EVALUATED. IN THIS ARTICLE, ABSTRACTED FROM THE PAPER READ BEFORE THE NORFOLK MEETING OF THE SOCIETY, IN APRIL, COLONEL DENT PRESENTS A STUDY OF WAVE ACTION, ITS EFFECTS ON CERTAIN TYPES OF BEACHES, AND THE SELECTION OF A SUITABLE METHOD OF BEACH PROTECTION OR MAINTENANCE.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: CR 7, JETTY, GROIN, EROSION

****
REF. NO.-0171

DEWEES, C.M. GOTSHALL, D.W. 1974.

AN EXPERIMENTAL ARTIFICIAL REEF IN HUMBOLDT BAY, CA.

CALIF. FISH AND GAME 60(3):109-127.

IN OCTOBER 1968, AN ARTIFICIAL REEF CONSTRUCTED OF USED TRUCK TIRES WAS PLACED IN SOUTHPORT CHANNEL OF HUMBOLDT BAY, CALIFORNIA BY THE EUREKA KIWANIS CLUB. STUDIES WERE CONDUCTED TO DETERMINE FLORAL AND FAUNA SPECIES COMPOSITION AND RELATIVE ABUNDANCE, AND TO MEASURE FISHING

REF. NO.-0171 (CONTINUED)

SUCCESS ON THE REEF. A ROCKY HABITAT FISH FAUNA WAS ATTRACTED TO THE REEF. BETWEEN APRIL 13, 1969, AND MAY 13, 1970, 15 SPECIES WERE CAPTURED BY HOOK AND LINE. SEVEN SPECIES WERE TAGGED WITH PETERSEN DISC TAGS. ESTIMATES OF FISH POPULATIONS REVEALED THAT THE MOST ABUNDANT FISHES WERE KELP GREENLING, FOLLOWED BY COPPER AND BLACK ROCKFISH. NO TAGGED FISH WERE CAPTURED AWAY FROM THE REEF. THE REEF DID NOT ATTRACT LARGE FISH FROM OTHER REEF AREAS. NEARLY ALL FISH CAPTURED ON THE REEF DURING SPRING, 1969, WERE OF THE 1968 YEAR CLASS. DURING DIVES, 9 SPECIES OF FISH, 25 SPECIES OF INVERTEBRATES AND 3 SPECIES OF ALGAE WERE OBSERVED ON OR NEAR THE REEF. LINGCOD AND PILE PERCH WERE THE ONLY SPECIES OF FISH OBSERVED BY DIVERS BUT NOT CAPTURED BY HOOK AND LINE. FISHING SUCCESS WAS MEASURED TO BETTER UNDERSTAND THE EFFECTIVENESS OF THE REEF. THE MOST SUCCESSFUL FISHING WAS FROM MAY TO OCTOBER. DURING PERIODS OF EXTREMELY TURBID WATER OR HEAVY TIDAL CURRENTS, FISHING SUCCESS TENDED TO DECREASE. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: REEF, RECREATION, FISH, HABITAT, CR 1, RESEARCH NEEDS

****
REF. NO.-0286

DISKIN, M.H. VAJDA, M.L. AMIR, I. 1970.

PILING-UP BEHIND LOW AND SUBMERGED PERMEABLE BREAKWATERS.

JOUR. WATERWAYS AND HARBORS DIV. A.S.C.E. 96(WW2):359-272.

LOW AND SUBMERGED BREAKWATERS DO NOT COMPLETELY ELIMINATE WAVE ACTION ON SHORE. TWO PROBLEMS ASSOCIATED WITH THESE STRUCTURES ARE EFFICIENCY IN REDUCING WAVE HEIGHT AND PILING-UP OF WATER INSIDE THE PROTECTED AREA. THE PROBLEMS OF PILING-UP ARE NOTICEABLE IN COMPLETELY ENCLOSED PROTECTED AREAS OR IN AREAS WITH VERY LONG BREAKWATERS PARALLEL TO THE BEACH. A MODEL INVESTIGATION OF PILING-UP SHOWED THAT MAXIMUM PILING-UP OCCURRED FOR BREAKWATERS THAT PROTRUDE ABOVE THE MEAN SEA LEVEL TO A HEIGHT OF 50 TO 90 PERCENT OF WAVE HEIGHT. IN THIS CASE PILING-UP WAS FOUND TO BE APPROXIMATELY 60 PERCENT OF THE DEEP WATER HEIGHT OF THE WAVES STRIKING THE BREAKWATER. LOWER INCIDENCES OF PILING-UP WERE RECORDED FOR DEEPLY SUBMERGED BREAKWATERS AND WHEN THE CREST OF THE BREAKWATER WATER WAS HIGH ABOVE THE MEAN SEA LEVEL.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: BREAKWATER, PROTECT

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REF. NO.-0176

DOCKS AND HARBOUR AUTHORITY. 1965.

MARITIME AND RIPARIAN USES OF GABIONS.

THE DOCKS AND HARBOUR AUTHORITY, LONDON. PP. 251-255.

THE FLEXIBILITY AND PERMEABILITY OF GABIONS OFFER DISTINCT TECHNICAL ADVANTAGES OVER CONVENTIONAL RIGID OR SEMI-REGID STRUCTURES, PARTICULARLY ON SITES WHERE SETTLEMENT OR UNDERMINING IS ANTICIPATED. SEVERAL USES OF GABIONS AS RETAINING STRUCTURES AND ANTI-EROSION STRUCTURES ARE DISCUSSED IN THIS NONEXPERIMENTAL ASSESSMENT. GABIONS ARE SUGGESTED FOR USE AS REVETMENTS, APRON PROTECTION, CHANNEL LININGS, COASTAL DEFENCES, PIERS AND JETTIES, QUAY SIDES, AND FLEXIBLE ROADS.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: REVETMENT, PIER, BRIDGE, SUPPORT, PROTECT, STABILIZE

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REF. NO.-0032

DODD, J.D. WEBB, J.W. 1975.

ESTABLISHMENT OF VEGETATION FOR SHORELINE STABILIZATION IN GALVESTON BAY.

U. S. ARMY CORPS OF ENGINEERS, CERC MISC. PAP. NO. 6-75. 67 PP.

THE OBJECTIVE OF THE STUDY WAS TO DETERMINE WHICH RESIDENT SPECIES OF PLANTS ADAPTED TO SALINE CONDITIONS CAN BE USED TO CONTROL SHORE EROSION IN BAYS OR ESTUARIES. WATER SALINITY AND SOIL PHYSICAL AND CHEMICAL CHARACTERISTICS WERE DETERMINED AT THE EXPERIMENTAL PLANTING SITES AT EAST BAY NEAR GALVESTON, TEXAS. THE SOIL WAS LOAM OR CLAY-LOAM TEXTURE AND WAS STRUCTURALLY UNSTABLE AND SUBJECT TO WAVE EROSION. SOIL SALINITY VARIED FROM 2,500 TO MORE THAN 12,000 PARTS PER MILLION AND WATER SALINITY FROM BELOW 2,500 TO 18,000 PARTS PER MILLION. TWELVE PLANT SPECIES WERE SELECTED FOR EVALUATION OF THEIR ABILITY TO STABILIZE THE SHORELINE. A TEMPORARY WAVE-STILLING DEVICE WAS INSTALLED TO PROMOTE PLANT ESTABLISHMENT AND SURVIVAL. (MODIFIED AUTHOR ABSTRACT)

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

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REF. NO.-0542

DODD, J.D. WEBB, J.W. 1975.

ESTABLISHMENT OF VEGETATION FOR SHORELINE STABILIZATION IN GALVESTON BAY.

U.S. ARMY CORPS OF ENGINEERS. CERC MISC. PUB. NO. 6-75. 67 PP.

THE OBJECTIVE OF THIS STUDY WAS TO DETERMINE WHICH RESIDENT SPECIES OF PLANTS ADAPTED TO SALINE CONDITIONS CAN BE USED TO CONTROL SHORE EROSION IN BAYS OR ESTUARIES. WATER SALINITY AND SOIL PHYSICAL AND CHEMICAL CHARACTERISTICS WERE DETERMINED AT THE EXPERIMENTAL PLANTING SITES AT EAST BAY NEAR GALVESTON, TEXAS. THE SOIL WAS LOAM OR CLAY-LOAM TEXTURE AND WAS

REF. NO.-0542 (CONTINUED)

STRUCTURALLY UNSTABLE AND SUBJECT TO WAVE EROSION. SOIL SALINITY VARIED FROM 2,500 TO MORE THAN 12,000 PARTS PER MILLION AND WATER SALINITY FROM BELOW 2,500 TO 18,000 PARTS PER MILLION. TWELVE PLANT SPECIES WERE SELECTED FOR EVALUATION OF THEIR ABILITY TO STABLIZE THE SHORELINE. GIANT REED (ARUNDO DONAX) IS EFFECTIVE IN THE UPPER ZONE (ABOVE MHW). BLACK MANGROVE (AVICENNIA GERMINANS) CAN ESTABLISH IN THE MIDDLE ZONE (MLW TO MHW) AND LOWER ZONE (BELOW MLW). SALTGRASS (DISTICHLIS SPICATA) MAY BE USED IN THE MIDDLE ZONE IF WAVE ACTION IS LOW AT PLANTING TIME. GULF CORDGRASS (SPARTINA SPARTINAE) IS ADAPTED FOR USE IN THE UPPER ZONE AND SMOOTH CORDGRASS (SPARTINA ALTERNIFLORA) IS WELL ADAPTED FOR USE IN THE MIDDLE AND LOWER ZONES. SEVERAL COMBINATIONS OF SPECIES ARE SUGGESTED FOR DIFFERENT ZONES. AN INEXPENSIVE WAVE-STILLING DEVICE TO PROTECT PLANTINGS FROM WAVE ACTION IS DESCRIBED. (AUTHOR ABSTRACT)

NATURE OF REFFRENCE: GENERAL

TYPE OF REFERFNCE: PUR

DESCRIPTORS: LAND PLANTS, CR 3, STABILIZE

****
REF. NO.-0003

DOLAN, R. GODFREY, P.J. ODUM, W.E. 1973.

MAN'S IMPACT ON THE BARRIER ISLANDS OF NORTH CAROLINA.

AMERICAN SCIENTIST 61:153-162.

LARGE SCALE MANIPULATIONS OF THE COASTAL ENVIRONMENT HAVE BEEN UNDERTAKEN TO PREVENT NATURAL PROCESSES THAT WERE THOUGHT TO BE UNDESIRABLE OR DESTRUCTIVE. AN EXAMPLE OF THE UNBALANCED SITUATION THAT RESULTS IS THE OUTER BANKS OF NORTH CAROLINA. THERE MORE THAN A CENTURY OF DUNE STABILIZATION AND OTHER MAN-MADE DISTURBANCE HAS LED TO TOTAL DISRUPTION OF THE DYNAMIC PROCESSES ASSOCIATED WITH BARRIER ISLANDS. FUTURE DEVELOPMENT SHOULD BE DONE CAREFULLY SO AS TO WORK WITH THE NATURAL PROCESSES RATHER THAN AGAINST THEM.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUR

DESCRIPTORS: PROTECT, RECREATION, EROSION, CR 5, CR 6

****
REF. NO.-0107

DOLAN, R. HAYDEN, B. 1974.

ADJUSTING TO NATURE IN OUR NATIONAL SEASHORES.

NATL. PARKS CONSERV. MAG. 48(6): 9-14.

A NEW NATIONAL PARK SERVICE POLICY ADOPTED SEPTEMBER 28, 1973 STATES THAT AN EFFORT TO ADJUST TO THE NATURAL MARINE AND ATMOSPHERIC FORCES SHAPING NATIONAL SEASHORES AND LAKESHORES WILL BE MADE RATHER THAN TO TRY TO CONTROL COASTAL PROCESSES. PREVIOUS COSTLY ATTEMPTS TO PROTECT

REF. NO.-0107 (CONTINUED)

AND/OR PREVENT COASTAL CHANGE WAS NOT COMPATIBLE WITH ORIGINAL NATIONAL SEASHORE MANAGEMENT POLICY.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0265

DOLAN, R. 1966.

BEACH CHANGES ON THE OUTER BANKS OF NORTH CAROLINA.

ANNALS ASSOC. AMER. GEOG. 56:699-711.

RELATIONSHIPS BETWEEN SURF-ZONE PROCESSES AND SUBAERIAL BEACH CHANGES ARE CONSIDERED AS THEY OCCUR ON BODIE ISLAND, NORTH CAROLINA. THE PROCESSES INCLUDE: WAVE HEIGHT, WAVE PERIOD, WAVE DIRECTION, AND STILL-WATER LEVEL. MEASUREMENTS OF BEACH CHANGE INCLUDE: BEACH THICKNESS, WIDTH, AND SLOPE, AS WELL AS THE SIZE AND SORTING OF THE BEACH-FACE SEDIMENT. ANALYSIS REVEALS THAT CHANGES IN THESE BEACH CHARACTERISTICS ARE PREDICTABLE USING ONLY TWO OF THE PROCESS FACTORS CONSIDERED: WAVE HEIGHT AND STILL WATER LEVEL. LARGE WAVES WITH HIGH WATER LEVELS CAUSE RAPID REDUCTIONS IN BEACH THICKNESS, WIDTH, AND SLOPE. SMALL WAVES WITH LOW WATER LEVELS ARE ASSOCIATED WITH THICKER, WIDER, AND STEEPER BEACHES. SEDIMENT SIZE AND SORTING SHOW LITTLE ASSOCIATION WITH THE PROCESSES OR BEACH CONFIGURATION. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0124

DUANE, D.B. HARRIS, D.L. BRUNO, R.O. HANDS, E.B. 1975.

A PRIMER OF BASIC CONCEPTS OF LAKESHORE PROCESSES.

U.S. ARMY CORPS OF ENGINEERS. CERC MISC. PAPER NO. 1-75. 29 PP.

WATER WAVES AND CURRENTS VARY AMONG OTHER THINGS, WITH GEOGRAPHY, WATER LEVEL (STAGE OF TIDE), SEASON, AND OFFSHORE SLOPE. THE NET EFFECT OF WAVE AND CURRENT FORCES IMPINGING UPON A SHORELINE, OCEAN OR LAKE IS TO CHANGE THE MORPHOLOGY OF THE COASTLINE AS A RESULT OF EROSION, TRANSPORT, AND DEPOSITION OF SEDIMENT. IN GENERAL, THE MODEL OF SEDIMENT TRANSPORT CAN BE THOUGHT OF AS MOVEMENT OF A SAND GROIN FROM SOME SOURCE SUCH AS A HEADLAND, TO A BARRIER BEACH, TO A DUNE, INTO AN INLET OR TO AN OFFSHORE SINK. KNOWLEDGE OF THE PROCESSES OF EROSION, TRANSPORTATION, AND DEPOSTION OF SEDIMENT IMPLICIT IN THIS MODEL IS OF VALUE TO THE ENGINEER AND THE GEOLOGIST AS WELL AS THE SHORELINE PROPERTY OWNER. CONCEPTS OF GENERATION OF WATER

REF. NO.-0124 (CONTINUED)

MOTIONS AND DIRECTIONS OF FLOW, CHARACTERISTICS OF THE FLOW, WATER LEVELS AND THEIR PERIODICITY, BED FORM GENERATION AND MOVEMENT, AND SEDIMENT ENTRAINMENT AND TRANSPORT ARE FUNDAMENTAL TO THE UNDERSTANDING OF LAKESHORE PROCESSES. BASIC ASPECTS OF THE CONCEPTS, IN LAY TERMS, ARE PRESENTED IN THIS REPORT. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUR

DESCRIPTORS: SEDIMENTATION, EROSION, LITTORAL PROCESSES, CR 8

****
REF. NO.-0166

DUNHAM, J.W. HARRETT, R.J. 1974.

WOVEN PLASTIC CLOTH FILTERS FOR STONE SEAWALLS.

J. WATERWAYS HARBORS AND COASTAL ENG. DIV. ASCE 100(WW1):13-22.

THE USE OF CLOTH FILTERS IS A METHOD OF FILTERING FOR VARIOUS KINDS OF CONCRETE-BLOCK AND STONE REVETMENTS, SEAWALLS, JETTIES AND BREAKWATERS. THIS PAPER IS A PROGRESS REPORT ON ITS INCREASING USE IN SEAWALLS ARMORED WITH LARGE STONE. ANALYSIS IS LIMITED TO TWO PLASTIC FILTER CLOTHS WITH DISTINCT OPENINGS, WOVEN OF MONOFILAMENT YARNS. BOTH WERE DESIGNED SPECIFICALLY FOR USE AS FILTERS AND HAVE BEEN USED IN OVER 100 OCEANFRONT STONE SEAWALLS. THE CONCLUSION IS THAT PLASTIC CLOTH FILTERS PROPERLY INSTALLED PROVIDE SECURITY AGAINST LOSS OF RETAINED MATERIAL IN A MORE POSITIVE MANNER THAN IS POSSIBLE WITH A FILTER COMPOSED ONLY OF ROCK PRODUCTS.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUR

DESCRIPTORS: REVETMENT, BULKHEAD, JETTY, STABILIZE, PROTECT, SEDIMENTATION

****
REF. NO.-0401

DUNHAM, J.W. FINN, A.A. 1974.

SMALL CRAFT HARBORS: DESIGN, CONSTRUCTION AND OPERATION.

U.S. ARMY CORPS OF ENGINEERS. CERC SPECIAL REPORT NO. 2. 375 PP.

ANALYTICAL DATA AND DESIGN STANDARDS AND PROCEDURES ARE PRESENTED FOR USE IN THE DEVELOPMENT OF SMALL-CRAFT HARBORS AND LAUNCHING FACILITIES UNDER A WIDE VARIETY OF CONDITIONS APPLICABLE TO A BROAD SPECTRUM OF GEOGRAPHIC LOCATIONS. ENVIRONMENTAL IMPACT AND GOVERNMENTAL CONTROL ASPECTS ARE DISCUSSED. PROCEDURES FOR DETERMINING PROJECT FEASIBILITY AND POSSIBLE SOURCES OF GOVERNMENTAL ASSISTANCE ARE PRESENTED. HARBOR OPERATIONS AND ADMINISTRATION ARE REVIEWED. SEVERAL CASE HISTORIES ARE INCLUDED. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

REF. NO.-0401 (CONTINUED)

TYPE OF REFERENCE: PUB

DESCRIPTORS: HARBOR, BULKHEAD, JETTY, REVETMENT, PILING, RAMP, PIER

****
REF. NO.-0002

D'ANGREMOND, K. SPAN, H.J. VAN DER WEIDE, J. WOESTENENK, A.J. 1970.

USE OF ASPHALT IN BREAKWATER CONSTRUCTION.

PP. 1601-1627 IN PROC. 12TH COASTAL ENGINEERING CONF.

AMONG THE MANY TYPES OF BREAKWATER CONSTRUCTIONS THE SO-CALLED 'RUBBLEMOUND' TYPE IS WIDELY USED. FOR THE CONSTRUCTION OF EXPOSED RUBBLE-MOUND BREAKWATERS RELATIVELY LARGE UNITS ARE NECESSARY TO CREATE A STABLE STRUCTURE. IN MANY PLACES IN THE WORLD ROCK OF THE REQUIRED SIZE IS NOT AVAILABLE AT REASONABLE COST, WHICH GAVE RISE TO THE DEVELOPMENT OF A GREAT VARIETY OF ARMOUR UNITS.

NATURE OF REFFRENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: BREAKWATER, JETTY, TRAINING, PROTECT

****
REF. NO.-0272

EARATTUPUZHA, J.J. RAMAN, H. 1972.

A RATIONAL APPROACH TO THE SELECTION OF SHORE PROTECTION MEASURES.

J. INST. ENG. (INDIA) CIV. ENG. DIV. 52(11):310-314.

IN THIS PAPER AN ATTEMPT IS MADE TO CLASSIFY THE SHORE PROTECTION WORKS ON THE BASIS OF THE CAUSES AND CONDITIONS OF SHORE PROCESSES WHICH NECESSITATE PROTECTION. REMEDIAL MEASURES MOST SUITABLE FOR SOME OF THE FUNDAMENTAL SITUATIONS ON THE COAST ARE SUGGESTED SO AS TO BE OF HELP TO THE COASTAL ENGINEER IN SELECTING THE RIGHT TYPE OF SHORE IMPROVEMENT DEVICE. THE APPROACH IS NECESSARILY CAUSE-RELATED SO THAT THE EQUILIBRIUM OF ADJACENT REACHES IS LEAST DISTURBED.
(AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: BULKHEAD, PROTECT, BREAKWATER

****
REF. NO.-0084

EBERHART, R.C. CHAPMAN, V.J. DUGGER, M.S. 1974.

REF. NO.-0084 (CONTINUED)

PRESSURES ON THE EDGES OF CHESAPEAKE BAY: 1973.

CHESAPEAKE RESEARCH CONSORTIUM, INCORPORATED, BALTIMORE. CRC PUBL. NO. 26. 51 PP.+MAPS.

APPLICATIONS FOR PHYSICAL ALTERATIONS IN CHESAPEAKE BAY TO THE BALTIMORE AND NORFOLK ARMY CORPS OF ENGINEERS OFFICES WERE ANALYZED. EMPHASIS WAS PLACED ON: SPATIAL DISTRIBUTION OF APPLICATION AND PERMIT TYPES; STRUCTURE TYPES MOST FREQUENTLY APPLIED FOR AND MOST FREQUENTLY GRANTED; DISTRIBUTION OF APPLICATIONS AND PERMITS ACCORDING TO EXTENT OR MAGNITUDE OF ALTERATION; DISTRIBUTION OF APPLICATIONS AND PERMITS ACCORDING TO OWNERSHIP AND USE; WETLANDS AND CRITICAL NATURAL AREAS POTENTIALLY IMPACTED BY PHYSICAL ALTERATIONS OF THE SHORELINE. FIFTY-FIVE PERCENT OF THE MARYLAND APPLICATIONS CAME FROM ONLY THREE COUNTIES. VIRGINIA BEACH, NORFOLK AND LANCASTER AND YORK COUNTIES ACCOUNTED FOR 43 PERCENT OF THE VIRGINIA APPLICATIONS. PERMITS WERE GRANTED FOR A MUCH LOWER PERCENTAGE OF DREDGING AND CHANNELIZATION APPLICATIONS THAN FOR PIERS, PILES AND BULKHEADING APPLICATIONS. A SUBSTANTIAL PERCENTAGE OF THE APPLICATIONS CAME FROM PRIVATE CITIZENS. OF APPLICATIONS FOR WHICH SHORELINE DATA WERE AVAILABLE, 25 PERCENT INVOLVED MARSHES, AND MORE MAY HAVE INVOLVED NARROW FRINGE MARSHES. RECOMMENDATIONS INCLUDE A NEED TO CONSIDER PATTERNS OF ALTERATIONS, CUMULATIVE EFFECTS, AND ANALYSIS OF PERMITS NOT REQUIRING CORPS OF ENGINEERS APPROVAL.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0018

ECKHART, B.   1968.

DEATH OF GALVESTON BAY.

TRANS. 33RD N. AMER. WILDL. CONF. PP. 79-90.

FIFTY YEARS AGO GALVESTON BAY HAD MANY LIVE OYSTER REEFS AND MANY SPECIES OF SPORT FISH AND MARINE ORGANISMS. THE DEMAND FOR OYSTER SHELLS FOR BUILDING ROADS AND FOR THE CALCIUM CARBONATE CONTENT WAS SUCH THAT A LARGE INDUSTRY WAS DEVELOPED TO MINE THIS COMMODITY BY DREDGING. THE RESULTING DESTRUCTION OF REEFS AND RESULTANT DESTRUCTION OF MARINE HABITAT HAS GREATLY REDUCED THE BIOMASS OF THE BAY. COMPARISON OF THE ECONOMIC RETURN OF MINING SHELLS WITH THE VALUE ASSOCIATED WITH THE BAY AS A PRODUCER OF MARINE LIFE SHOWS SHELL MINING VALUE TIMES LESS. POLLUTION BY HUMAN AND INDUSTRIAL WASTE ALSO THREATENS THE BAY AND HAS REDUCED THE AREA OF THE BAY FIT FOR COMMERICIAL PRODUCTION OF OYSTERS. THE FILL OF ONSHORE WETLANDS ALSO CONTRIBUTES TO THE DECLINE OF THE PRODUCTIVITY OF THE BAY.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0389

ECOLOGICAL SUB-COMMITTEE FOR THE VANCOUVER INTERNATL. AIRPORT PLAN. COMM. 1976.

AN ENVIRONMENTAL IMPACT ASSESSMENT OF THE VANCOUVER INTERNATIONAL EXPANSION PROPOSALS.

A SUMMARY REPORT. 22 PP.

THE FINDINGS OF THE ECOLOGICAL SUB-COMMITTEE, AN INTERDISCIPLINARY INTER-AGENCY STUDY GROUP ARE PRESENTED. THE REPORT PROVIDES ECOLOGICAL INFORMATION ON THE RESOURCES OF THE FRASER RIVER ESTUARY/DELTA, IT DOCUMENTS RESOURCE USES, REVIEWS CURRENT ENVIRONMENTAL PROBLEMS, ADDRESSES ENVIRONMENTAL IMPACTS THAT WOULD RESULT FROM EXPANSION OF VANCOUVER INTERNATIONAL AIRPORT, IT RECOGNIZES THE NEED FOR A COMPREHENSIVE APPROACH TO MANAGEMENT OF THE AREA AND MAKES A SERIES OF RECOMMENDATIONS FOR RESOLVING LAND-RESOURCE PROBLEMS

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: RESEARCH NEEDS, JETTY, BREAKWATER, CAUSEWAY, DREDGE/FILL

****
REF. NO.-0140

EDMUND, N.W. 1967.

OLD TIRES: THE IDEAL BUILDING MATERIAL FOR BUILDING FISH HAVENS.

SANTA CRUZ ANGLING AND HUNTING CLUB, SANTA CRUZ, CALIFORNIA. BIG TREES PRESS. 15 PP.

THIS BOOKLET IS DESIGNED TO CALL ATTENTION TO POTENTIAL USEFULNESS OF OLD TIRES, SUGGEST SOME IDEAS AND TO URGE FISHERMEN TO AID IN THE BUILDING OF EXPERIMENTAL TIRE FISH HAVENS. POOR FISHING IS CITED AS A CONSEQUENCE OF SEVERAL FACTORS: INSECT SPRAYS AND POLLUTION HAVE UPSET THE WHOLE LIFE CHAIN OF MARINE ORGANISMS; RECLAIMING OF MARSHLANDS; DESTRUCTION OF BOTTOM HABITAT BY NETS DRAGGING BOTTOM FROM COMMERCIAL FISHERMEN; INCREASED TRAWLER EFFICIENCY AND INCREASING RECREATIONAL CATCHES. METHODS FOR SINKING AND ANCHORING THE TIRES ARE GIVEN. DIFFERENT WAYS TIRES CAN BE ATTACHED TOGETHER FOR POSSIBLE HAVENS AND AREAS OF EFFECTIVENESS ARE COVERED. SOME COMMENTS ON VARIOUS STRUCTURES, ARTIFICIAL SEAWEED OR CONCRETE FISH HOUSES ARE OFFERED AND SEVERAL POINTS FOR FURTHERING THE TIRE HAVEN CONCEPT.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: REFF, FISH, HABITAT

****
REF. NO.-0172

EDWARDS, P. 1976.

ILLUSTRATED GUIDE TO THE SEAWEEDS AND SEA GRASSES IN THE VICINITY OF PORT ARANSAS, TEXAS.

UNIV. OF TEXAS PRESS, AUSTIN, TEXAS. PP. 2-3.

REF. NO.-0172 (CONTINUED)

SEAWEEDS AND SEA GRASSES IN THE VICINITY OF PORT ARANSAS, TEXAS ARE PRESENTED IN THIS ILLUSTRATED GUIDE TO THE IDENTIFICATION OF MARINE PLANTS. METHODS OF COLLECTION AND PRESERVATION ARE GIVEN.

NATURE OF REFFRENCE: BIO

TYPE OF REFERENCE: PUR

DESCRIPTORS: AQUATIC PLANTS, HABITAT, CR 3, JETTY, PILING

****
REF. NO.-0268

ELLIFRIT, N.J. YOSHINAKA, M.S. COON, D.W. 1972.

SOME OBSERVATIONS OF CLAM DISTRIBUTION AT FOUR SITES ON HOOD CANAL, WASHINGTON.

PROC. NATL. SHELLFISH ASSOC. 63:7.

A STUDY OF INTERTIDAL SHELLFISH POPULATIONS ON HOOD CANAL WAS CONDUCTED. THE PURPOSE OF THE STUDY WAS TO DETERMINE WHETHER BULKHEADS AND ATTENDANT FILL IN THE UPPER INTERTIDAL LEVELS HAVE AN EFFECT UPON SHELLFISH. FOUR SITES WERE EXAMINED WITH SAMPLES COLLECTED ALONG FOUR TRANSECTS PERPENDICULAR TO THE SHORLINE AT EACH SITE. TWO TRANSECTS WERE LOCATED IN FRONT OF A BULKHEAD AND TWO ON AN ADJACENT NATURAL BEACH. AT THREE OF THE SITES MORE THAN TWICE AS MANY CLAMS WERE FOUND ON NATURAL BEACHES AS ON BULKHEADED BEACHES. THERE WAS ALSO A TREND TOWARD DIFFERENCES IN SIZE AND DISTRIBUTION. CLAMS INHABITING LOWER INTERTIDAL LEVELS DID NOT SEEM TO BE AFFECTED BY BULKHEADS. THE MOST PROBABLE EXPLANATION FOR THE OBSERVED DIFFERENCES WAS A CHANGE IN CURRENT PATTERNS ASSOCIATED WITH BULKHEADS, WHICH RESULT IN LESS FAVORABLE CONDITIONS FOR SETTLING AND SURVIVAL OF CLAM LARVAE, AND MAY ALSO CAUSE A REDUCTION IN AVAILABILITY OF NUTRIENTS AND FOOD.

NATURE OF REFFRENCE: BIO

TYPE OF REFERENCE: PUR

DESCRIPTORS: BULKHEAD, CR 1, SHELLFISH

****
REF. NO.-0141

ELLIS, M.M. 1936.

EROSION SILT AS A FACTOR IN AQUATIC ENVIRONMENTS.

ECOLOGY 17(1): 29-42.

THE BEHAVIOR OF SILT AND ITS IMPACT ON INLAND STREAMS ARE REVIEWED. EROSION SILT ALTERS AQUATIC ENVIRONMENTS CHIEFLY BY SCREENING OUT LIGHT, CHANGING HEAT RADIATION, BLANKETING THE STREAM BOTTOM, AND BY RETAINING ORGANIC MATERIAL AND OTHER SUBSTANCES.

NATURE OF REFERENCE: GENERAL

REF. NO.-0141 (CONTINUED)

TYPE OF REFERFNCE: PUB

DESCRIPTORS: FROSION, SEDIMENTATION

****
REF. NO.-0443

ELLIS, R.H. 1972.

COASTAL ZONE MANAGEMENT SYSTEM: A COMBINATION OF TOOLS.

TOOLS FOR COASTAL ZONE MANAGEMENT. CONF. PROC. WASH. D.C. PP. 95-112.

A COMBINATTON OF SYSTEM TECHNIQUES FOR ORGANIZING, SYNTHESIZING, ANALYZING AND APPLYING INFORMATION FOR COASTAL ZONE MANAGEMENT IS DISCUSSED. THE RESULTS OF INFORMATION COLLECTION, STORAGE RETRIVAL; MODELS AND OTHER ANALYTICAL TOOLS; CAUSE-EFFECT INFORMATION; AND DEVELOPED ANAYLTICAL APPROACHES ARE COMBINED INTO ONE MANAGMENT INFORMATION SYSTEM. IT IS CONCLUDED THAT PLANNING AND MANAGEMENT OF OF COASTAL ZONE RESOURCES SHOULD HAVE HIGH PRIORITY AND LIKE SUPPORT.

NATURE OF REFFRENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0095

EL-ASHRY, M.T. 1971.

CAUSES OF RECENT INCREASED EROSION ALONG UNITED STATES SHORELINES.

GEOL. SOC. AMER. BULL. 82:2033-2038.

THE PRESENCE OF REACH RIDGES EXTENDING PARALLEL TO THE PRESENT SHORELINES OF MANY AREAS ALONG U.S. COASTS INDICATES PROGRADATION OF THESE AREAS AFTER THE LAST GLACIAL STAGE OF THE PLEISTOCENE EPOCH. THE GENERAL TREND OF SHORELINE CHANGES IN THE PAST 100 YEARS, HOWEVER, WAS EROSION OF SEVERAL HUNDRED FEET OF THE BEACHES. THREE MAJOR CAUSES ARE CONSIDERED RESPONSIBLE FOR SUCH INCREASED EROSION. THESE ARE: (1) HURRICANES AND SEVERE STORMS; (2) RECENT EUSTATIC RISE IN SEA LEVEL; AND (3) INTERFERENCE BY MAN WITH NATURAL SHORE PROCESSES. (AUTHOR ABSTRACT)

NATURE OF REFFRENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: FROSION, JETTY, CR 4, STABILIZE

****
REF. NO.-0365

ENVIRONMENT CANADA MINISTRY OF NATURAL RESOURCES. 1975.

CANADA-ONTARIO GREAT LAKES SHORE DAMAGE SURVEY.

TECHNICAL REPORT . ENVIRON. CANADA, MIN NAT. RES. 97 PP.

STORM ACTION COMBINED WITH RECORD HIGH WATER LEVELS IN 1972-73 CAUSED EXTENSIVE DAMAGE TO GREAT LAKES SHORELINES. THIS REPORT DESCRIBES THAT DAMAGE AND MAKES RECOMMENDATIONS TO MINIMIZE SIMILAR DAMAGE IN THE FUTURE. METHODS AND CRITERIA OF THE SURVEY ARE DESCRIBED. DISCUSSIONS OF EROSION AND INUNDATION CAUSES AND MAGNITUDE OF EROSION AS WELL AS CONSEQUENCES OF SHORELINE DAMAGE ARE INCLUDED. RECOMMENDATIONS INCLUDE DEFINITION OF SHORELINE HAZARD LANDS, DEVELOPMENT OF COASTAL ZONE MANAGEMENT PLANS, SITE SPECIFIC STUDIES TO BE MADE, CONTINUED MONITORING AND AN INTENSIFICATION OF PUBLIC AWARNESS PROGRAMS.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0481

ENVIRONMENTAL QUALITY LABORATORY, INC. 1977.

CHAPTER IV: TECHNICAL WETLANDS MANUAL (REVIEW COPY, SUBJECT TO REVISION).

PREPARED FOR U.S. ARMY ENGINEER INSTITUTE FOR WATER RESOURCES, FORTBELVOIR, VA. CONTRACT NO. DACW 72-77-C-003. 59 PP.

THIS REPORT IS WRITTEN TO BE USED AS A GUIDE FOR DESIGNERS OF WETLAND CONSTRUCTION PROJECTS. GENERICALLY, WETLAND CONSTRUCTION MAY NOT BE CONSISTENT WITH OUR EVOLVING NATIONAL POLICY OF WETLAND PROTECTION, BUT IT IS REALISTIC TO ASSUME THAT SOME FUTURE WETLAND CONSTRUCTION WILL STILL BE NECESSARY. IN CASES WHERE WETLAND USE REQUIRES THE BUILDING OF STRUCTURES, DESIGNS ARE AVAILABLE WHICH MITIGATE, AND IN SOME CASES ELIMINATE, THE ADVERSE EFFECTS OF THESE STRUCTURES. SUCH DESIGNS ARE PRESENTED IN THIS REPORT ALONG WITH THE RATIONALE EXPLAINING EACH DESIGNS PARTICULAR ATTRIBUTES FOR WETLAND PROTECTION. THE UNAVOIDABLE ADVERSE EFFECTS OF VARIOUS STRUCTURES ARE ALSO DISCUSSED, AS IS THE RELATIVE IMPORTANCE OF EACH OF THESE EFFECTS. THE PURPOSE OF THIS REPORT IS NOT TO JUSTIFY OR ENCOURAGE WETLAND CONSTRUCTION, BUT RATHER TO DRAW TOGETHER STATE-OF-THE-ART DESIGNS FOR VARIOUS TYPES OF STRUCTURES OR CONSTRUCTION ACTIVITIES. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: UNPUB

DESCRIPTORS: PILING, HARBOR, PIER, BULKHEAD, REVETMENT, GROIN, DREDGE/FILL

****
REF. NO.-0259

ENVIRONMENTAL SCIENCE INFORMATION CENTER. 1973a.

SEA GRANT NEWSLETTER INDEX, 1968-72.

COMPILED BY P.K. WEEDMAN. U.S.DEPT. OF COMMERCE. NOAA TECH. MEMO. EDS ESIC-10. 157 PP.

INDEX OF ALL ISSUES OF NEWSLETTERS THAT HAVE BEEN PRODUCED WITH SEA GRANT SUPPORT, RECEIVED BY THE NATIONAL SEA GRANT DEPOSITORY.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: BIBLIOGRAPHY

****
REF. NO.-0260

ENVIRONMENTAL SCIENCE INFORMATION CENTER. 1973b.

SEA GRANT PUBLICATIONS INDEX, 1968-72.

COMPILED BY P.K. WEEDMAN. U.S. DEPT. OF COMMERCE. NOAA TECH. MEMO. EDS ESIC-89. 2 VOLS.

INDEX OF MATERIALS RECEIVED BY THE NATIONAL SEA GRANT DEPOSITORY THROUGH 31 JANUARY 1973 WITH THE EXCEPTION OF NEWSLETTERS WHICH APPEAR IN THE SEA GRANT NEWSLETTER INDEX.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: BIBLIOGRAPHY

****
REF. NO.-0112

ERCHINGER, H.F. 1970.

LAND RECLAMATION AND GROIN-BUILDING IN THE TIDAL FLATS.

PROC. 12TH COASTAL ENG. CONF. AMER. SOC. CIVIL ENG. PP. 1041-1052.

ALONG THE NORTH SEA COAST OF GERMANY THERE ARE TWO LARGE AREAS WHERE LAND RECLAMATION WORK IN THE TIDAL FLATS IS BEING CARRIED OUT. CONDITIONS AND WORKING METHODS FOR LAND RECLAMATION IN TIDAL FLATS AS WELL AS THE DEVELOPMENT OF NEW GROIN CONSTRUCTIONS ON THE OSTFRIESIAN COAST ARE DISCUSSED.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

REF. NO.-0112 (CONTINUED)

DESCRIPTORS: GROIN

****
REF. NO.-0410

FETTEROLF, C.M., JR. 1976.

LETTER TO D. GRANGER, MICHIGAN DEPARTMENT OF NATURAL RESOURCES.

EXECUTIVE SECRETARY, GREAT LAKES FISHERY COMM.

A NUMBER OF OBSERVATIONS ON THE EFFECTS OF SHORELINE AND LAKE BED MODIFICATIONS ARE INCLUDED IN THIS LETTER. THE WRITER FEELS THAT DECISIONS TO GRANT OR DENY PERMITS ARE MADE ON A CASE-BY-CASE BASIS WITHOUT BENEFIT OF AN OVERALL KNOWLEDGE OF WHETHER A PARTICULAR HABITAT TYPE TO BE ALTERED IS BY ITS SCARCITY AND BIOLOGICAL VALUE, ALREADY LIMITING THE FISHERY MANAGEMENT OBJECTIVES IN A WATER BODY. MAPPING OF SHORELINES AND LITTORAL ZONES TO IDENTIFY EXISTING MODIFICATIONS AND PROVIDE AN INVENTORY OF WHAT BIOLOGICALLY VALUABLE HABITAT REMAINS IS NECESSARY TO REACH ANY DEFENSIBLE DECISION ON FUTURE PERMIT APPLICATIONS.

NATURE OF REFFRENCE: GENERAL

TYPE OF REFERENCE: UNPUB

DESCRIPTORS: CR B, HABITAT, LEGAL

****
REF. NO.-0244

FINE, J.C. 1976.

HYDROSTRUCTURES COLONIZE THE DEEP.

WATER SPECTRUM 8(2):27-34.

'HYDROSTRUCTURE' OR THE BUILDING OF ARTIFICIAL SUBMARINE REEFS TO INSURE CONTINUANCE OF AN AMPLE FOOD SUPPLY AND PRESERVATION OF SPAWNING GROUNDS IS DISCUSSED. IN THE PAST, CONSTRUCTION WAS HAPHAZARD, NOW IT IS BECOMING A CAREFULLY REGULATED PROCEDURE. THE AUTHOR CONCLUDES THAT MAN'S SURVIVAL DEPENDS ON CAREFUL HUSBANDRY OF OUR OCEANS AS WELL AS TERRESTRIAL RESOURCES, AND STRESSES THAT IN ORDER TO REAP, IT IS NECESSARY TO PLANT.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: REEF

****
REF. NO.-0554

FLORIDA BUREAU OF ENVIRONMENTAL PROTECTIO. 1975.

REF. NO.-0554 (CONTINUED)

GUIDELINES FOR ASSESSMENT OF DREDGE AND FILL PROJECTS.

FLORIDA BUR. ENV. PROT. TALLAHASSEE, FL. 16 PP.

THE FLORIDA GAME AND FRESHWATER FISH COMMISSION IS GIVEN OVERALL REGULATORY AND ADMINISTRATIVE POWERS FOR THE MANAGEMENT AND PROTECTION OF WILDLIFE AND FRESHWATER AQUATIC LIFE. IMPLIED IN THIS AUTHORITY AND SPECIFICALLY REQUESTED IN STATE AND FEDERAL LEGISLATION IS THE FUNCTION OF ASSESSING AND REPORTING TO VARIOUS STATE AND FEDERAL AGENCIES THE IMPACTS OF PROPOSED DREDGE/FILL PROJECTS. THIS DOCUMENT IS DESIGNED TO FAMILIARIZE THE INVOLVED AGENCIES WITH THE CONCEPTS AND CRITERIA UTILIZED IN MAKING SUCH ASSESSMENTS. GUIDELINES WHICH WOULD MINIMIZE DREDGING IMPACT ON WILDLIFE AND AQUATIC LIFE ARE GIVEN.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUR

DESCRIPTORS: CR 3, CR 4, CR 5, DREDGE/FILL, PIER, PRODUCTIVITY, BENTHOS, HARBOR, BULKHEAD

****
REF. NO.-0519

FLORIDA COASTAL COORDINATING COUNCIL. 1973.

RECOMMENDATIONS FOR DEVELOPMENT ACTIVITIES IN FLORIDA'S COASTAL ZONE.

STATE OF FLORIDA DEPT NAT. RES., TALLAHASSEE. APPENDIX 1. PP. 1-3.

THE APPENDIX OUTLINES DESIGN CRITERIA FOR THE CONSTRUCTION OF MARINAS, DOCKS AND PIERS, AND DREDGE/FILL ACTIVITIES THAT WOULD MINIMIZE ADVERSE ENVIRONMENTAL IMPACT ON THE FLORIDA COASTAL ZONE.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUR

DESCRIPTORS: HARBOR, MOORING, LAUNCH, CR 3, CR 4, CR 5, PIER, DREDGE/FILL, CR 3, CR 4, CR 5

****
REF. NO.-0228

FLORIDA DEPARTMENT OF NATURAL RESOURCES. 1973.

RECOMMENDATIONS FOR DEVELOPMENT ACTIVITIES IN FLORIDA'S COASTAL ZONE.

STATE OF FLORIDA, TALLAHASSEE PP. 12-14.

RECOMMENDATIONS ARE GIVEN FOR THE CONSTRUCTION OF BULKHEADS, BREAKWATERS, JETTIES, GROINS, DOCKS AND PIERS AND FOR DREDGING AND FILLING AND REMOVAL OF NATURAL VEGETATION ALONG FLORIDA'S SHORELINE.

NATURE OF REFERENCE: ENG

REF. NO.-0228 (CONTINUED)

TYPE OF REFERENCE: PUR

DESCRIPTORS: BULKHEAD, BREAKWATER, JETTY, GROIN, DREDGE/FILL, PROTECT, CR 3, CR 4, CR 5

****
REF. NO.-0191

FLORIDA ENGINEERING AND INDUSTRIAL EXPERIMENT STATION. 1968.

ENGINEERING PROGRESS AT THE UNIVERSITY OF FLORIDA.

GAINESVILLE, FLLEAFLET NO. 196. 75 PP.

INDEX OF PUBLICATIONS OF THE FLORIDA ENGINEERING AND INDUSTRIAL EXPERIMENT STATION FOR THE MONTH OF DECEMBER, 1968.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUR

DESCRIPTORS: BIBLIOGRAPHY

****
REF. NO.-0207

FLORIDA GAME AND FRESHWATER FISH COMMISSION. 1975.

GUIDELINES FOR ASSESSMENT OF DREDGE AND FILL PROJECTS.

FLORIDA GAME AND FRESHWATER FISH COMM. 16 PP.

ARTICLE IV, SECTION 9 OF THE CONSTITUTION OF THE STATE OF FLORIDA GIVES THE GAME AND FRESHWATER FISH COMMISSION REGULATORY AND ADMINISTRATIVE POWERS FOR MANAGEMENT AND PROTECTION OF WILDLIFE AND FRESHWATER AQUATIC LIFE. THIS DOCUMENT IS DESIGNED TO FAMILIARIZE DEVELOPMENT AGENCIES, INDIVIDUALS AND THE GENERAL PUBLIC WITH CONCEPTS AND CRITERIA CONCERNING IMPACTS OF DREDGE AND FILL PROJECTS ON WILDLIFE AND FRESHWATER AQUATIC LIFE. ONLY THE DEGREE TO WHICH PROJECT IMPLEMENTATION WILL AFFECT HABITAT AND INDIVIDUAL SPECIES OF FISH AND WILDLIFE ARE CONSIDERED. A NUMBER OF GUIDELINES APPLICABLE TO ALL DEVELOPMENTS ARE GIVEN AS ARE EVALUATION CRITERIA FOR ASSESSMENT OF SHORT AND LONG TERM IMPACTS. CONSTRUCTION TECHNIQUE GUIDELINES FOR DOCKS, PLATFORMS AND PIERS NOT REQUIRING DREDGING, FOR BOAT BASINS, FOR BULKHEADS AND SEAWALLS, FOR BRIDGES AND FOR SEVERAL OTHER CONSTRUCTION ACTIVITIES IN WETLANDS ARE SET DOWN.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: GOV REP

DESCRIPTORS: PIER, HARBOR, DREDGE/FILL, BULKHEAD, BRIDGE, CR 3, CR 4, CR 5

****
REF. NO.-0361

FORNEY, F.H. LYNDE, G.A. 1951.

BEACH PROTECTION ENGINEERS ATTEMPT TO OUTWIT NATURE AT PRESQUE ISLE PENINSULA.

CIVIL ENGINEERING, ASCE. 21(9):28-31.

A HISTORY OF ATTEMPTS TO PROTECT PRESQUE ISLE PENINSULA FROM EROSION IS PRESENTED. THE VARIOUS METHODS USED INCLUDE BREAKWATERS, REVETMENT, BULKHEADING, JETTIES AND GROINS. A PROPOSED PROJECT USING GROINS AND ARTIFICIAL BEACH NOURISHMENT IS DISCUSSED.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: CR 8, HARBOR, REVETMENT, BULKHEAD, GROIN, JETTY, STABILIZE, PROTECT, EROSION, LITTORAL PROCESSES, LITTORAL PROCESSES, BREAKWATER

****
REF. NO.-0080

FREDERIKSEN, H.D. 1971.

WAVE ATTENUATION BY FLUID FILLED BAGS.

J. WATERWAYS, HARBORS AND COASTAL ENGINEERING DIV., PROC. AMER. SOC. OF CIVIL ENG. (WW1):73-90.

THE CONSTRUCTION OF LARGE MASSIVE STRUCTURES OF VARIOUS TYPES REMAINS THE MOST COMMON APPROACH TO SHELTER AN AREA FROM WAVES. THIS PAPER INVESTIGATES THE EFFECTIVENESS OF A PORTABLE FLUID-FILLED FLOATING BLANKET AS AN ALTERNATIVE TO MAJOR CONSTRUCTION TO PROTECT AN AREA FROM WAVES. TESTS WERE MADE UNDER LABORATORY CONDITIONS.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: BREAKWATER

****
REF. NO.-0505

FREY, K.P.H. 1974.

DEVELOPMENT OF HERMAPHRODITE BREAKWATER UNITS UTILIZING HYDROFOILS INSPECIFIC ARRANGEMENTS.

PP. 113-129 IN PROC. FLOATING BREAKWATERS CONFERENCE, NEWPORT, RI. TECH. SER. NO. 24. (Q.V. KOWALSKI, 1974A).

THE PRESENT STUDIES HAVE CONTINUED EXPLORATIONS ON WHETHER THERE ARE MERITS IN USING BASIC AIRFOIL OR HYDROFOIL RESEARCH IN THE FIELD OF FLOATING BREAKWATERS. PREVIOUS TESTS HAVE BEEN EXTENDED IN THIS STUDY TO PROVIDE A BROADER BASIS FOR JUDGMENT OF BREAKWATER UNITS OF DISCONTINUOUS SURFACE; EMPHASIS HAS BEEN TO THE SIGNIFICANCE OF THE THICKNESS RATIO (H/C) OF

REF. NO.-0505 (CONTINUED)

SECTIONS. THE MOST INTERESTING RESULT SEEMS TO OCCUR WHEN TWO TYPES OF UNITS WITH A DISCONTINUOUS SURFACE AND WITH A CONTINUOUS SURFACE ARE COMBINED. BEACH-LIKE INCLINATIONS WITH THE LEADING EDGE LOWER THAN THE TRAILING EDGE WERE GENERALLY MOST EFFECTIVE IN THESE TESTS. A COMPOSITE BREAKWATER WITH A DISCONTINUOUS SURFACE AND A UNIT OF CONTINUOUS SURFACE SHOULD BE ADJUSTED SO THAT THE DISCONTINUOUS PORTION ACHIEVES A SUBSTANTIAL AMOUNT OF THE TOTAL EXPECTED WAVE ATTENUATION, WHERE THIS IS PHYSICALLY FEASIBLE AND NEEDED. THE CONTINUOUS PORTION OF THE BREAKWATER ACHIEVES THE FINAL REASONABLE HIGH ATTENUATION OF WAVES IN A WAY WHICH REDUCES THE CHANCE THAT POLLUTION SPILLS IN THE UPPER WATER LAYERS CAN EXPAND BEYOND THE DEVICE. HENCE, A SPECIAL KIND OF HERMAPHRODITE DEVICE IS SUGGESTED.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUR

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0532

GAGE, B.O. 1970.

EXPERIMENTAL DUNES OF THE TEXAS COAST.

U.S. ARMY CORPS OF ENGINEERS. CERC MISC. PAPER NO. 1-70. 34 PP.

REPORT DESCRIBES EXPERIMENTS OF CREATING AND STABILIZING SAND DUNES TO PROTECT THE COAST. FOUR LOCATIONS WERE SELECTED; THE SW END OF GALVESTON ISLAND, PACKERY CHANNEL, NEWPORT PASS ON NORTH PADRE ISLAND AND CORPUS CHRISTI PASS. LOW AREAS OF THE BARRIER ISLANDS WERE PLANTED IN BEACH GRASS IN AN ATTEMPT TO ESTABLISH DUNES WITHOUT THE AID OF SAND FENCES. SNOW FENCING WAS USED TO ACCUMULATE WINDBLOWN SAND, AND BEACH GRASS PLANTED TO STABILIZE DUNES. JUNK CAR BODIES WERE PLACED IN LINE PARALLEL TO BEACHES TO ESTABLISH AND STABILIZE DUNES BY TRAPPING SAND. SINCE SNOW FENCES ARE MORE EFFECTIVE AND MUCH CHEAPER, JUNK CARS ARE NOT RECOMMENDED FOR BUILDING DUNES. (MODIFIED AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUR

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0253

GAITHER, W.S. 1970.

RESEARCH IN THE OCEANIC ENVIRONMENT.

ANNUAL STATUS REPORT, UNIVERSITY OF DELAWARE, NEWARK. 18 PP.

PROGRESS DURING THE FIRST YEAR OF A MULTIDISCIPLINARY STUDY OF THE COASTAL ENVIRONMENT OF A SECTION OF THE ATLANTIC SEA COAST (DELAWARE AND ADJACENT NEW JERSEY AND MARYLAND AREAS) IS

REF. NO.-0253 (CONTINUED)

SUMMARIZED. INCLUDED ARE FIELD, LABORATORY, AND THEORETICAL INVESTIGATIONS OF SEDIMENTARY PROCESSES, COASTAL VEGETATION, TIDAL MARSH SOILS, WAVE ACTION AND ATTENUATION, AIR-SEA INTERACTIONS, GEOLOGICAL HISTORY AND MARINE BIOLOGY. CORRELATION OF GROUND OBSERVATIONS WITH HIGH ALTITUDE PHOTOGRAPHIC IMAGERY TO PROVIDE A USEFUL METHOD FOR THE REMOTE CHARACTERIZATION OF SUCH COASTAL REGIONS IS AN IMPORTANT OBJECTIVE. (NTIS ABSTRACT)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0283

GANTT, L.K. 1975.

ECOLOGICAL CONSIDERATIONS REGARDING USE OF BULKHEADS AND RIPRAP IN THE CHESAPEAKE BAY ESTUARY FOR SHORE EROSION CONTROL.

U.S. FISH AND WILDLIFE SERVICE. (MIMEO.).

THE PURPOSE OF THE PAPER IS TO CAREFULLY EXAMINE AND COMPARE ENVIRONMENTAL IMPACTS OF THE USE OF ROCK RIPRAP REVETMENTS AND TIMBER BULKHEADS IN SHORE EROSION CONTROL. THE BIOLOGICAL IMPACTS OF BOTH STRUCTURES ARE DESCRIBED AND COMPARED. COST ESTIMATES FOR TYPICAL STRUCTURES ARE PROVIDED. THE ARTICLE CONCLUDES THAT RIPRAP IS A MORE ENVIRONMENTALLY ACCEPTABLE ALTERNATIVE TO THE USE OF BULKHEADS FOR SHORE EROSION CONTROL ALONG THE CHESAPEAKE BAY SHORELINE.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: UNPUB

DESCRIPTORS: PROTECT, REVETMENT, BULKHEAD, STABILIZE, ECONOMICS, CR 6, EROSION

****
REF. NO.-0076

GARBISCH, E.W., JR. WOLLER, P.B. MCCALLUM, R.J. 1975.

SALT MARSH ESTABLISHMENT AND DEVELOPMENT.

U.S. ARMY CORPS OF ENGINEERS. CERC TECHNICAL MEMO. NO. 52. 110 PP.

THE ESTABLISHMENT AND DEVELOPMENT OF SEEDLING TRANSPLANTS FOR SHORELINE EROSION ABATEMENT ARE REPORTED FOR SPARTINA ALTERNIFLORA WITHIN THE INTERTIDAL ZONES AND FOR SPARTINA PATENS, SPARTINA CYNOSUROIDES, DISTICHLIS SPICATA, AND AMMOPHILA BREVILIGULATA WITHIN THE SUPRATIDAL ZONES, OF A DREDGED-MATERIAL SITE AND THREE SANDY SHORE SITES IN THE MID- CHESAPEAKE BAY REGION. NO LIMITATIONS WERE FOUND FOR PLANT ESTABLISHMENT ABOVE MEAN HIGH WATER (MHW) AT THE EXPERIMENTAL SITES. IN PLACES, ESTABLISHMENT OF SPARTINA ALTERNIFLORA IN THE INTERTIDAL ZONES WAS LIMITED BY WAVE AND SUSPENDED COARSE SEDIMENT STRESSES. SPARTINA ALTERNIFLORA TRANSPLANT

REF. NO.-0076 (CONTINUED)

MORTALITIES IN HIGH-STRESS INTERTIDAL AREAS INCREASED WITH DECREASING ELEVATION, AND DECREASED WITH PERIODIC FERTILIZATIONS OR FROM MID-SPRING, AS OPPOSED TO EARLY SPRING, PLANTINGS. THE NET PRODUCTION OF SPARTINA ALTERNIFLORA TRANSPLANTS IN MODERATE TO LOW-ENERGY SANDY AREAS WAS INCREASED BETWEEN 135 PERCENT AND 860 PERCENT BY PERIODIC APPLICATIONS OF FERTILIZER. THE NET PRODUCTION OF THIS SPECIES IN THE UNFERTILIZED DREDGED-MATERIALS (FINE SEDIMENTS) AREA WAS COMPARABLE TO THOSE IN THE FERTILIZED SANDY AREAS. MACROBENTHIC INVERTEBRATE INVASION AND COLONIZATION OF THE STERILE DREDGED-MATERIAL AREA WAS SLOW, BUT AFTER 11 MONTHS THE NUMBER OF INDIVIDUALS PER SQUARE METER BETWEEN MHW AND 15 CENTIMETERS BELOW MEAN LOW WATER (MLW) WAS STATISTICALLY GREATER THAN THOSE AT NEARBY NATURAL AND MANMADE TIDAL SANDFLAT AREAS. THE TOTAL POPULATIONS OF BENTHOS AT THE THREE MONITORING SITES INCREASED SIGNIFICANTLY WITH DECREASING ELEVATION FROM HW TO 15 CENTIMETERS BELOW MLW. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUR

DESCRIPTORS: STABILIZE, LAND PLANTS, GROIN

****
REF. NO.-0342

GARBISCH, E.W., JR. 1977.

MARSH DEVELOPMENT FOR SHORE EROSION CONTROL.

GREAT LAKES VEGETATIONWORKSHOP PROCEEDINGS. GREAT LAKES BASIN COMMISSION, ANN ARBOR, MI. PP. 77-91.

MARSH DEVELOPMENT IS PRESENTED AS AN ALTERNATIVE TO BUILDING STRUCTURES SUCH AS REVETMENTS, BULKHEADS, BREAKWATERS, GROINS, ETC. MARSH DEVELOPMENT IS A VIABLE ALTERNATIVE ON EXISTING SHORES WHEN THE SHORE IS 10 FT WIDE OR MORE, OF SUITABLE ELEVATION, AND THE TOE OF THE BANK TO BE PROTECTED RECEIVES DIRECT SUNLIGHT FOR AT LEAST 4 HOURS PER DAY DURING THE GROWING SEASON. IF ELEVATIONS SEAWARD OF A BANK ARE NOT HIGH ENOUGH FOR MARSH DEVELOPMENT, THE FORESHORE AREA MAY BE FILLED TO SUITABLE ELEVATIONS OR THE BANK MAY BE SLOPED AND THE FORESHORE AREA FILLED FROM THIS PROCESS TO A SUITABLE ELEVATION. MARSH DEVELOPMENT IS SEEN AS POTENTIALLY SUCCESSFUL FOR EROSION CONTROL IN THE GREAT LAKES REGION, ESPECIALLY WITHIN LOW-PROFILE PROTECTIVE ENCLOSURES OR BEHIND BREAKWATERS. HOWEVER, MARSH CREATION TECHNOLOGY IS NOT DEVELOPED FOR APPLICATION IN THE GREAT LAKES WITHOUT PRELIMINARY RESEARCH.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUR

DESCRIPTORS: REVETMENT, STABILIZE, LAND PLANTS, EROSION, CR 8, PROTECT

****
REF. NO.-0131

GEORGIA DEPARTMENT OF NATURAL RESOURCES. 1974.

METHODS FOR BEACH SAND DUNE PROTECTION.

TRI-STATE CONFERENCE HELD AT JEKYLL ISLAND, GEORGIA. GEO. DEPT. OF NATURAL RES. 50 PP.

BASIC ECOLOGICAL PRINCIPALS ARE DISCUSSED IN RELATION TO ALTERNATIVE METHODS FOR BEACH AND SAND DUNE PROTECTION. RECOMMENDATIONS PERTAIN TO (1) THE ROLE OF CITIZENS IN BEACH AND DUNE PROTECTION, (2) CRITERIA FOR SUCCESSFUL BEACH EROSION CONTROL PROJECTS, (3) AND INTER-GOVERMENTAL COOPERATION FOR PROTECTION MEASURES. (NTIS ABSTRACT)

NATURE OF REFERENCE: RIO

TYPE OF REFERENCE: PUR

DESCRIPTORS: GROIN, PROTECT, EROSION, STABILIZE, CR 5

****
REF. NO.-0552

GEORGIA DEPARTMENT OF NATURAL RESOURCES. 1975.

THE VALUE AND VULNERABILITY OF COASTAL RESOURCES.

RESOURCE PLANNING SECTION, GEORGIA DEPT. NAT. RES., ATLANTA, GA. 320 PP.

A SERIES OF BACKGROUND PAPERS ON 'THE VALUE AND VULNERABILITY OF COASTAL RESOURCES' IS PRESENTED. THE PAPERS WERE WRITTEN BY INDIVIDUAL SCIENTISTS AND RESEARCHERS IN THE UNIVERSITY SYSTEM OF GEORGIA AND IN THE DEPARTMENT OF NATURAL RESOURCES, FOR THE GEORGIA COASTAL ZONE MANAGEMENT PROGRAM. THE PURPOSE OF THE PAPERS IS TO PRESENT, IN SUMMARY FORM, AVAILABLE INFORMATION ON THE BENEFITS RESULTING FROM THE NATURAL FUNCTIONING OF COASTAL RESOURCES, AND THE SUSCEPTIBILITY OF THESE RESOURCES TO CHANGE. THIS BACKGROUND INFORMATION IS INTENDED TO BE USED IN DEVELOPING COASTAL ZONE MANAGEMENT POLICIES AND PROGRAMS.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUR

DESCRIPTORS: DREDGE/FILL, GROIN, BULKHEAD, CAUSEWAY

****
REF. NO.-0380

GERKE, R.J. KACZYNSKI, V.W. 1972.

FOOD OF JUVENILE PINK AND CHUM SALMON IN PUGET SOUND, WASHINGTON.

WA DEPT. OF FISHERIES. TECH. REP. NO. 10. 27 PP.

PINK AND CHUM SALMON (ONCORHYNCHUS GORBUSCHA AND O. KETA) WERE COLLECTED FROM THREE WIDELY SEPARATED ONSHORE AREAS OF PUGET SOUND DURING APRIL, MAY, AND EARLY JUNE 1970 TO ASCERTAIN THE KINDS AND TYPES OF ORGANISMS IN THE DIET. SAMPLING AREAS INCLUDED: (1) ANDERSON ISLAND (SOUTHERN PUGET SOUND), (2) PORT SUSAN (CENTRAL PUGET SOUND), AND (3) TOANDOS PENINSULA (HOOD CANAL). FISH COLLECTED FROM THE ANDERSON ISLAND AREA FED ALMOST EXCLUSIVELY ON HARPACTICOID COPEPODS (95% OF THE STOMACH CONTENTS). FOOD ITEMS CONSUMED AT THE OTHER SAMPLING SITES INDICATED A MORE VARIABLE DIET AS GAMMARID AMPHIPODS, BARNACLE NAUPLII, EUPHAUSIDS,

REF. NO.-0380 (CONTINUED)

HARPACTICOID COPEPODS, AND EGGS OF INVERTEBRATE ANIMALS WERE IMPORTANT IN THE DIET. EPIBENTHIC FORMS WERE THE PREDOMINANT FOOD TYPE THROUGHOUT THE SAMPLING PERIOD AT ANDERSON ISLAND AND DURING THE MONTH OF MAY AT THE OTHER AREAS. INTERSPECIFIC DIFFERENCES IN THE KINDS OR ORGANISMS CONSUMED WERE UNCOMMON. THE DISTINCT ECOLOGICAL ZONE THAT EPIBENTHIC FORMS INHABIT MAKES THEM EXTREMELY SUSCEPTIBLE TO CHANGES IN THE BEACH HABITAT BROUGHT ABOUT BY DOMESTIC AND INDUSTRIAL DEVELOPMENT OF INTERTIDAL AND SUBTIDAL AREAS. PIERS, JETTIES, LANDFILLS, MARINAS, BULKHEADS, AND OTHER FACILITIES THAT EITHER DISTURB OR DESTROY BEACH AREA COULD BE HIGHLY DETRIMENTAL TO AQUATIC LIFE, ESPECIALLY THE KIND THAT LIVES IN ASSOCIATION WITH THE BOTTOM SUBSTRATE. NOT ONLY DO THESE SALT-WATER INSTALLATIONS REMOVE LIVING AREA FOR ECONOMICALLY IMPORTANT FISHES, BUT THEY ALSO ELIMINATE HABITAT THAT SUPPORTS THE FOOD THESE FISH FEED UPON. THIS FACT COULD VERY WELL HAVE A GREAT IMPACT ON THE MAGNITUDE OF FUTURE PUGET SOUND PINK AND CHUM STOCKS. (MODIFIED AUTHOR ABSTRACT)

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: PIER, JETTY, HARBOR, BULKHEAD, FISH, CR 1

****
REF. NO.-0193

GEYER, R.A. 1972.

IMPACTS OF ENVIRONMENTAL CHANGES ON GULF COAST ESTUARIES.

TRANS. 37TH N. AMER. WILDL. CONF. PP. 335-348.

THE ENVIRONMENTAL CHANGES OF SEVERAL GULF COAST ESTUARIES ARE DISCUSSED. BOTH MAN CAUSED AND NATURAL CHANGES ARE PRESENTED. THE AUTHOR STRESSES THAT ALTHOUGH THE ESTUARIES COMPRISE A MAJOR COMPONENT OF THE COASTAL ZONE AND ARE THE NATIONS MOST IMPORTANT GEOGRAPHICAL FEATURE, BOTH ECONOMICALLY AND SOCIOLOGICALLY, THEY MUST BE DEVELOPED IN AN OPTIMUM MANNER FOR THE BEST INTERESTS OF EVERYONE.

NATURE OF REFFRENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: DREDGE/FILL

****
REF. NO.-0301

GIANNIO, S.P. WANG, H. 1974.

ENGINEERING CONSIDERATIONS FOR MARINAS IN TIDAL MARSHES.

DELAWARE UNIVERSITY, NEWARK. COLLEGE OF MARINE STUDIES. SEA GRANT PUBLICATION NO. DEL-SG-9-74. 114 PP.

DESIGN GUIDELINES HAVE BEEN DEVELOPED TO INCORPORATE THE DESIRABLE QUALITIES OF THE MARSH IN A

REF. NO.-0301 (CONTINUED)

MARINA, THEREBY REDUCING THE ENVIRONMENTAL IMPACT. WHEN A MARINA DISPLACES MARSHLAND, THE MOST IMPORTANT QUALITY WHICH MUST BE MAINTAINED IS BIOLOGICAL PRODUCTION. THE METHODS SUGGESTED AND RECOMMENDED FOR THE PRESERVATION OF THIS QUALITY ARE: FLUSH THE MARINA TO PROMOTE WATER CIRCULATION WHICH CYCLES NUTRIENTS AND PREVENTS EUTROPHICATION; USE DREDGE SPOILS FROM THE MARSH TO ESTABLISH NEW PRODUCTIVE MARSHES ELSEWHERE; PROVIDE CONTACT AREA WITHIN THE MARINA SO FOULING COMMUNITIES, AN ORGANIC FOOD SOURCE, CAN PROSPER AND MULTIPLY; CONTROL WATER QUALITY SO THAT ESTUARINE SPECIES CAN THRIVE IN THE MARINA; AND PROVIDE AN EQUAL AMOUNT OF ORGANIC FOOD IN THE MARINA TO MAKE UP FOR THE LOSS OF FOOD FROM DISPLACED MARSHLAND. TO INDICATE HOW A COMPLEMENTARY MARINA-MARSH SYSTEM COULD BE ACHIEVED, AN EXAMPLE OF A COMPOSITE DESIGN USING THESE GUIDELINES IS ALSO PRESENTED. (NTIS MODIFIED AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: HARBOR, DREDGE/FILL, SEDIMENTATION, HABITAT, BIRDS

****
REF. NO.-0479

GIFFORD, C.A. 1977.

LETTER CONCERNING EFFECTS OF SHORELINE STRUCTURES.

P.O. BOX 449, GULF BREEZE, FL. PERS. COMM.

DESCRIPTION OF THE EFFECTS OF PIERS, GROINS, JETTIES, BULKHEADS, REVETMENTS, BREAKWATERS, (FIXED AND FLOATING), SAND GRABBERS, SPOIL BANKS, DREDGED CHANNELS, AND BEACH NOURISHMENT ARE DESCRIBED FROM A STANDPOINT OF PERSONAL EXPERTISE. A NUMBER OF SOURCES OF FURTHER INFORMATION ARE LISTED.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: INT

DESCRIPTORS: PIER, GROIN, JETTY, BULKHEAD, REVETMENT, BREAKWATER, CR 3, CR 4, CR 5, PROTECT, STABILIZE, TRAINING

****
REF. NO.-0202

GILMORE, G. TRENT, L. 1974.

ABUNDANCE OF BENTHIC MACROINVERTEBRATES IN NATURAL AND ALTERED ESTUARINE AREA.

NOAA TECHNICAL REPORT, NMFS SSRF-677. 12 PP.

THE ABUNDANCE OF BENTHIC MACROINVERTEBRATES DURING MARCH-OCTOBER 1969 IN WEST BAY, TEXAS WAS COMPARED AMONG: 1) A NATURAL MARSH AREA 2) AN ADJACENT MARSH AREA ALTERED BY CHANNELIZATION, BULKHEADING, AND FILLING, AND 3) AN OPEN BAY AREA. ANIMALS REPRESENTING FOUR PHYLA WERE CAUGHT. ABUNDANCE INDICES (AREAS COMBINED) OF THE FOUR GROUPS IN TERMS OF NUMBERS WERE 66.4%

REF. NO.-0202 (CONTINUED)

POLYCHAETES, 29.6% CRUSTACEANS, 2.5% PELECYPODS, AND 1.5% NEMERTEANS; VOLUMES WERE 44.0% POLYCHAETES, 40.8% PELECYPODS, 10.7% NEMERTEANS AND 4.4% CRUSTACEANS. WHEN ALL ORGANISMS WERE COMBINED, THEY WERE SLIGHTLY MORE ABUNDANT NUMERICALLY AND OVER TWICE AS ABUNDANT VOLUMETRICALLY IN THE MARSH THAN IN THE CANALS AND WERE LEAST ABUNDANT IN THE BAY; ABUNDANCE WAS HIGHEST AT STATIONS WITH LOW TO INTERMEDIATE AMOUNTS OF SILT AND CLAY OR WHERE VEGETATIVE MATTER WAS COMPOSED MOSTLY OF LIVE SEA GRASSES OR DETRITUS. CRUSTACEANS WERE MORE ABUNDANT IN THE NATURAL MARSH THAN IN THE OTHER TWO AREAS AND SHOWED A DEFINITE PREFERENCE FOR SANDY SUBSTRATE IN MARSH AREAS. PELECYPODS WERE NUMERICALLY MOST ABUNDANT IN THE BAY BUT VOLUMETRICALLY THE MARSH HAD THE HIGHEST STANDING CROP. NEMERTEANS WERE MOST ABUNDANT IN THE MARSH AND LEAST ABUNDANT IN THE BAY. IN GENERAL, THE SEASONAL ABUNDANCE OF POLYCHAETES AND NEMERTEANS VARIED LITTLE DURING THE STUDY, WHEREAS CRUSTACEANS AND PELECYPODS WERE ABUNDANT ONLY DURING THE SPRING AND EARLY SUMMER. AN EXCEPTION TO THIS SEASONAL ABUNDANCE PATTERN WAS THE REDUCTION IN NUMBERS OF POLYCHAETES AT THE UPPER-MOST CANAL STATION WHERE THE HABITAT WAS APPARENTLY UNSUITABLE DUE TO LOW OXYGEN LEVELS DURING THE SUMMER AND EARLY FALL.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: DREDGE/FILL, BULKHEAD, HARBOR, CR 3, BENTHOS

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REF. NO.-0065

GIVENS, F.B., JR. 1976.

SHORELINE EROSION CONTROL ON VIRGINIA'S RIVERS AND BAYS.

SHORE AND BEACH. 44(1):25-30.

THE SOIL CONSERVATION SERVICE PRESENTS CRITERIA TO AID IN THE ANALYSIS OF SHORELINE OR BEACH EROSION AND DESIGN OF PROPER PROTECTIVE STRUCTURES GROINS, BULKHEADS, REVETMENTS AND THE USE OF VEGETATION ARE PROTECTIVE MEASURES CONSIDERED.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: BULKHEAD, CR 6, PROTECT, EROSION, GROIN, LITTORAL PROCESSES

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REF. NO.-0521

GODFREY, P.J. GODFREY, M.M. 1975.

SOME ESTUARINE CONSEQUENCES OF BARRIER ISLAND STABLIZATION.

ESTUARINE RESEARCH 2:485-516.

A COMPARISON BETWEEN SALT MARSHES BEHIND STABILIZED AND UNSTABILIZED BARRIER ISLANDS WAS MADE AT CAPE HATTERAS AND CAPE LOOKOUT NATIONAL SEASHORES. IN THE FORMER AREA, THE BARRIER DUNES

REF. NO.-0521 (CONTINUED)

HAVE BEEN STABILIZED SO THAT OVERWASH AND NEW INLET DEVELOPMENT HAVE BEEN MINIMIZED AND AT THE LATTER THESE NATURAL PROCESSES CONTINUE. IT IS CONCLUDED THAT LONG- TERM STABILITY, EITHER NATURALLY OR ARTIFICIALLY CREATED, LEADS TO SENESCENCE OF THE SALT MARSHES AND THUS TO A DECREASE IN PRODUCTIVITY. LETTING THE BARRIER ISLANDS REMAIN IN OR RETURN TO THEIR NATURAL STATE IS DESIRABLE, BUT WHERE THIS IS NOT FEASIBLE, A COMPROMISE APPROACH INVOLVING SOME OVERWASH OR CREATION OF ARTIFICIAL MARSHES MAY BE NECESSARY.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: CR 5, CR 6, EROSION, PROTECT, PRODUCTIVITY

****
REF. NO.-0425

GORDON, J.R. UNDATED.

INTERDISCIPLINARY TEAM APPROACH TO MITIGATING ADVERSE ENVIRONMENTAL IMPACTS OF HIGHWAY CONSTRUCTION.

OFFICE ENVIRON. PLANNING, CALIF. DEPT. TRANSPORT. 11 PP.

TO ASSESS THE EFFECTIVINESS OF THE INTERDISCIPLINARY TEAM APPROACH IN HIGHWAY PLANNING AND PROJECT DEVELOPMENT IN CALIFORNIA, THE AUTHOR, BY USING THE CASE STUDY METHOD, EXAMINES INTERRELATIONSHIPS AND INTERWORKINGS OF ENGINEERING AND NONENGINEERING SKILLS IN ADDRESSING PROBLEMS ASSOCIATED WITH THE IMPACT OF HIGHWAY CONSTRUCTION ON THE SENSITIVE NATURAL ENVIRONMENT WITHIN THE JURISDICTION OF THE COASTAL ZONE CONSERVATION COMMISSION. AS A RESULT OF THIS ANALYSIS, THE AUTHOR CONCLUDES THAT AGENCY ORGANIZATIONS SHOULD PROVIDE FOR AN IN-HOUSE CORE OF EXPERTISE AND USE OUTSIDE CONSULTANTS ONLY WHEN HIGHLY SPECIALIZED EXPERTISE IS NEEDED. ALSO, THE ORGANIZATION MUST BE FLEXIBLE SO THAT THE CONCEPT CAN BE APPLIED EASILY AT ALL STAGES OF THE HIGHWAY PLANNING AND PROJECT DEVELOPMENT PROCESS. OF IMPORTANCE TO THE SUCCESSFUL OPERATION OF THE INTERDISCIPLINARY TEAM APPROACH IS THE ATTITUDE OF TOP MANAGEMENT. IT MUST BE RESPONSIVE TO ISSUES RAISED BY ALL DISCIPLINES AND MUST CONSIDER THE CONTRIBUTIONS OF ALL DISCIPLINES EQUALLY AND FAIRLY. THROUGH THE IMPLEMENTATION OF THE CALIFORNIA ACTION PLAN, CALIFORNIA HAS COMMITTED ITSELF TO THE EFFECTIVE APPLICATION OF THE INTERDISCIPLINARY TEAM APPROACH. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0212

GOSSELINK, J.G. ODUM, E.P. POPE, R.M. 1973.

THE VALUE OF THE TIDAL MARSH.

URBAN AND REGIONAL DEV. CENTER. UNIV. OF FLORIDA, GAINSVILLE. WORK PAPER NO 3. 25 PP.

REF. NO.-0212 (CONTINUED)

A STEP-WISE MEANS OF ASSESSING THE TRUE VALUE OF NATURAL TIDAL MARSHES TO SOCIETY AS A WHOLE IS DEVELOPED. THIS VALUE IS BASED ON COMMERCIAL USAGE, SOCIAL USAGE AND THE MONETARY VALUE OF THE NATURAL, UNDEVELOPED ESTUARINE ENVIRONMENT. FOUR LEVELS WERE SELECTED FOR MONETARY EVALUATION OF MARSHLANDS AND ESTUARIES; 1) BY-PRODUCT PRODUCTION (FISHERIES, ETC.); 2) POTENTIAL FOR AQUACULTURAL DEVELOPMENT; 3) WASTE ASSIMILATION; AND 4) TOTAL 'LIFE SUPPORT' VALUE IN TERMS OF THE 'WORK OF NATURE' AS A FUNCTION OF PRIMARY PRODUCTION. A DEMONSTRATION OF THE SUBSTANTIAL ECONOMIC VALUE OF MARSHLANDS PROVIDES AN INCENTIVE TO PRESERVE PUBLICLY BUT NOT PRIVATELY OWNED MARSHLANDS. THE BEST APPROACH TO THE PRESERVATION OF MARSHLANDS IS LAND-USE PLANNING AND PUBLIC OWNERSHIP OF MARSHLANDS.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: PROTECT, ECONOMICS, HABITAT, FISH, SHELLFISH, BIRDS, LAND PLANTS, PRODUCTIVITY, SPAWNING, BULKHEAD

****
REF. NO.-0549

GOSSELINK, J.G. REIMOLD, R.J. GALLAGHER, J.L. WIDOM, H.L. ODUM, E.P. UNDATED.

SPOIL DISPOSAL PROBLEMS FOR HIGHWAY CONSTRUCTION THROUGH MARSHES.

THE INSTITUTE OF ECOLOGY, UNIVERSITY OF GEORGIA. REPORT PREPARED FOR STATE HIGHWAY DEPT. OF GEORGIA. GRANT NO. 10-32-RR271- 029. MIMEO. 57 PP.

CONSTRUCTION TECHNIQUES FOR HIGHWAYS THROUGH COASTAL MARSHES ARE COMPLICATED BY UNSTABLE SOILS. RECENTLY TECHNIQUES WERE DEVELOPED WHICH INVOLVED A TRENCH DOWN TO SUITABLE SUBSTRATE AND DISPOSAL OF THE DUG OUT SPOIL IN THE ADJOINING MARSH, CAUSING HABITAT LOSS. THIS REPORT EXAMINES THE RAMIFICATIONS OF THIS PRACTICE AND DISCUSSES TWO ALTERNATIVES, BRIDGING AND SIDE CASTING. SOIL ANALYSES AND VEGETATION SURVEYS WERE CARRIED OUT. COMPARISON OF COSTS OF DIFFERENT TECHNIQUES WERE MADE AND METHODS OF REVEGETATION EVALUATED. MORE EXTENSIVE USE OF BRIDGES MAY BE JUSTIFIED.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: UNPUB

DESCRIPTORS: CAUSEWAY, BRIDGE, LAND TRANSPORT, LAND PLANTS, PRODUCTIVITY, ECONOMICS

****
REF. NO.-0305

GRAETZ, K.E. 1973.

SEACOAST PLANTS OF THE CAROLINAS FOR CONSERVATION AND BEAUTIFICATION.

UNIVERSITY OF NORTH CAROLINA SEA GRANT PROGRAM. REPORT NO. UNC-SG-73-06. 212 PP.

AFTER A BRIEF DESCRIPTION OF THE BEACH ENVIRONMENT, INFORMATION IS GIVEN ON THE VARIOUS

REF. NO.-0305 (CONTINUED)

GRASSES AND PLANTS FOUND IN THE BEACH ENVIRONMENT. EXPERIENCES GAINED IN DEALING WITH WOODY PLANTINGS FOR DUNE PROTECTION ARE REVIEWED. OBJECTIVES IN CONSERVATION AND BEAUTIFICATION ARE STRESSED. (NTIS ABSTRACT)

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0338

GREAT LAKES BASIN COMMISSION SOIL CONSERVATION SERVICE. 1977.

GREAT LAKES VEGETATION WORKSHOP PROCEEDINGS.

GREAT LAKES BASIN COMMISSION, ANN ARBOR, MI. 113 PP.

A WORKSHOP ON THE ROLE OF VEGETATION IN STABILIZATION OF THE GREAT LAKES SHORELINE WAS HELD TO ASSESS THE STATE OF THE ART OF TECHNIQUES FOR USING VEGETATION FOR BANK STABILIZATION ON THE GREAT LAKES. PAPERS PRESENTED IN THE PROCEEDINGS COVER A WIDE RANGE OF FACTORS RELATIVE TO VEGETATIVE STABILIZATION. OVERVIEWS OF THE SCOPE OF SHORE EROSION. PROBLEMS ON THE GREAT LAKES AND THE TERRESTIAL PROCESSES INVOLVED IN EROSION AND THE INFLUENCE OF VEGETATION ON SLOPE PROCESSES ARE PRESENTED SELECTION OF PLANTING TECHNIQUES AND POSSIBLE GRASS, SHRUB, AND TREE SPECIES WHICH MAY BE SUITABLE UNDER VARIOUS SOIL MOISTURE CONDITIONS ARE OUTLINED. TWO PAPERS DISCUSS THE AESTHETIC ASPECTS OF VEGETATION ALONG THE COASTLINE, AND FOUR ADDITIONAL PAPERS DESCRIBE SURVEYS AND RESEARCH INTO VEGETATIVE STABILIZATION OF SHORELINES. IT WAS CONCLUDED THAT WHILE A LACK OF PRACTICAL EXPERIENCE IN THE APPLICATION OF VEGETATIVE STABILIZATION TECHNIQUES IS EVIDENT FOR THE GREAT LAKES REGION, STRONG SUPPORT FOR INCREASED RESEARCH AND DEMONSTRATION PROJECTS WAS INDICATED BY WORKSHOP ATTENDENCE

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0538

GREAT LAKES BASIN COMMISSION. 1975.

GREAT LAKES BASIN FRAMEWORK STUDY: SHORE USE AND EROSION.

APPENDIX 12. 111 PP. + MAPS.

THIS REPORT CONTAINS AN ASSESSMENT OF GREAT LAKES SHORELAND MANAGEMENT PROBLEMS, THEIR CAUSES, EFFECTS AND POSSIBLE SOLUTIONS. SECTION 1 OF THE REPORT EXPLAINS HOW TO DEVELOP A MANAGEMENT PROGRAM FOR THE SHORE REGION. SECTION 2 CONCERNS INFORMATION ON THE PHYSICAL FACTORS THAT CAUSE SHORELINE EROSION. SECTION 3 DESCRIBES THE ELEMENTS OF A SHORELAND MANAGEMENT PROGRAM.

REF. NO.-0538 (CONTINUED)

SECTION 4 GIVES A BRIEF OVERVIEW OF AVAILABLE STATE AND FEDERAL PROGRAMS. SECTION 5 DISCUSSES EXISTING AND PROJECTED USE OF SHORELAND RESOURCES, DAMAGE POTENTIALS, AND ALTERNATIVE PLANS FOR REDUCING DAMAGE FOR EACH GREAT LAKE. SECTION 6 SUGGESTS A FRAMEWORK OF STUDIES, DATA COLLECTION, AND RESEARCH ACTIVITIES AIMED AT REDUCING SHORE DAMAGES.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUR

DESCRIPTORS: CR 8, EROSION, PROTECT, BULKHEAD, REVETMENT, BREAKWATER, GROIN

****
REF. NO.-0450

GREAT LAKES RESEARCH INSTITUTE. 1975.

SHORELINE EROSION AND FLOODING: ERIE COUNTY.

PENN. DEPT. ENVIRON. RES. 172 PP. + APPENDICES.

DUE TO HIGHER THAN NORMAL WATER LEVELS IN THE GREAT LAKES BASIN SINCE 1972, THERE HAS BEEN ACCELERATED SHORELINE EROSION AND BLUFF RECESSION. AS PART OF THE COASTAL ZONE MANAGEMENT PROGRAM IN PENNSYLVANIA, A STUDY OF THE ERIE COUNTY SHORELINE WAS MADE TO IDENTIFY AND CLASSIFY HAZARD AREAS ON THE LAKESHORE. THE MOST IMMEDIATE THREAT ON THE LAKESHORE IS FLOODING AND EROSION IN LOW-LYING COTTAGES AREAS. THE RATE OF RECESSION OF THE BLUFF HAS INCREASED SIGNIFICANTLY ALONG THE ENTIRE SHORELINE DURING THE PAST THREE YEARS, AND IF CURRENT RATES CONTINUE OVER THE NEXT 25 YEARS, SEVERAL HUNDRED HOMES AND COTTAGES WILL BE ENDANGERED. EROSION RATES VARY FROM TWO INCHES TO 52 INCHES PER YEAR OF SHORELINE.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUR

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0037

GREER, A. 1976.

WINNING THE BATTLE AGAINST EROSION IN CHESAPEAKE BAY.

SEA GRANT '70S. 7(1): 2-3.

THE USE OF SILLS ALONG CHESAPEAKE BAY BUILDS UP BEACH TO PROTECT CLIFFS FROM WAVE EROSION. SILLS CONSIST OF A LINEAR ARRANGEMENT OF PVC COATED NYLON BAGS FILLED WITH SAND AND PLACED PARALLEL TO SHORE. THESE STRUCTURES ARE COMPARATIVELY ECONOMICAL TO INSTALL AND QUICKLY COVER WITH SAND TO PROVIDE A NATURAL APPEARANCE.

NATURE OF REFERENCE: GENERAL

REF. NO.-0037 (CONTINUED)

TYPE OF REFERENCE: PUB

DESCRIPTORS: REVETMENT, PROTECT, EROSION, CR 6

****
REF. NO.-0109

GUNTER, G. BALLARD, B.S. VENKATARAMIAH, A. 1974.

A REVIEW OF SALINITY PROBLEMS OF ORGANISMS IN UNITED STATES COASTAL AREAS SUBJECT TO THE EFFECTS OF ENGINEERING WORKS.

GULF RES. REPTS. 4(3): 380-475.

THE NONGASEOUS SUBSTANCES THAT NORMALLY MOVE IN AND OUT OF CELLS ARE METABOLITES, WATER AND SALTS. THE COMMON SALTS IN WATER DETERMINE ITS SALINITY, AND THE DEFINITION OF SEA WATER SALINITY AND ITS COMPOSITION ARE DISCUSSED. THE RELATIONSHIPS OF SALINITY TO ALL PHYLA OF ANIMALS LIVING IN THE COASTAL WATERS ARE REVIEWED. WITH EMPHASIS ON THE ESTUARIES OF THE GULF AND ATLANTIC COASTS OF THE UNITED STATES, WHICH ARE PARTICULARLY INFLUENCED BY COASTAL ENGINEERING WORKS AND CHANGES OF SALINITY CAUSED THERBY. EACH SEPARATE BAY, SOUND OR ESTUARY IS AN INDIVIDUAL CASE WITH REGARD TO SALINITY, BUT THEY CAN BE APPRAISED BY BIOLOGISTS ACQUAINTED WITH THE LOCAL FAUNA AND FLORA SO AS TO MINIMIZE AND POSSIBLY EVEN ENHANCE THEIR BIOTIC POTENTIAL IN CONNECTION WITH SALINITY CHANGES CAUSED BY ENGINEERING WORKS.
(MODIFIED AUTHOR ABSTRACT)

NATURE OF REFFRENCE: RIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: FISH, INVERTEBRATES, NURSERY, SALINITY

****
REF. NO.-0317

GUNTER, G. 1957.

HOW DOES SILTATION AFFECT FISH PRODUCTION.

NATIONAL FISHERMAN 38(3):18-19.

THE SHORE ANIMALS OF THE GULF OF MEXICO MAY HAVE SPECIAL ADAPTATIONS TO A SILTED ENVIRONMENT. WHEN NATURAL SILTATION PROCESSES ARE LOCALLY SPEEDED UP, UPSET OR DISTURBED BY MAN, THE OVERALL SYSTEM IS PROBABLY NOT CHANGED BUT LOCAL TROUBLE OCCURS. ALL THE DREDGING ON THE GULF COAST MAY NOT STIR UP AS MUCH SILT AS ONE PERIOD OF STRONG WINDY WEATHER. MUDSHELL DREDGES MIGHT DO GOOD IN THAT THEY STIR UP THE BOTTOM AND RELEASE NUTRIENT SALTS. HOWEVER, MUCH MORE RESEARCH IS NEEDED TO DETERMINE THE OVERALL EFFECTS OF MAN-CAUSED SILTATION.

NATURE OF REFFRENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0349

GUSTAFSON, J.F. 1972.

BENEFICIAL EFFECTS OF DREDGING TURBIDITY.

WORLD DREDGING MAR. CONSTR. 9(13):44-52,72.

THE NATURE OF FINE SEDIMENTS IN FRESHWATER AND MARINE ENVIRONMENTS ARE DESCRIBED. FOR DECADES, MAN HAS REGARDED TURBIDITY AS BEING DANGEROUS (BIOLOGICALLY), AND UNDESIRABLE (ESTHETICALLY), AND NOW CONTROLLABLE (POLITICALLY). REGULATORY PROVISIONS OF STATE AND FEDERAL ORIGIN HAVE BEEN CREATED OR ARE BEING PROPOSED TO REDUCE MAN-CAUSED TURBIDITY TO A MINIMUM LEVEL. THE AUTHOR OFFERS SOME INDICATIONS THAT THE TOXICITIES OF SUSPENDED SEDIMENTS IS WITHOUT BASIS IN FACT.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: DREDGE/FILL, SEDIMENTATION

****
REF. NO.-0180

HADERLIE, E.C. 1970.

ECOLOGICAL IMPLICATIONS OF BREAKWATER CONSTRUCTION IN MONTEREY HARBOR.

MARINE POLLUTION BULL. 2(6):90-92.

AN ATTEMPT IS BEING MADE TO ASSESS THE EFFECTS OF THE CONSTRUCTION OF A BREAKWATER COMPLEX ON THE SHALLOW MARINE ENVIRONMENT OF MONTEREY BAY. MANY SPECIES MAY BE DRIVEN AWAY BY TEMPERATURE AND SALINITY FLUCTUATIONS AND BY THE ACCUMULATION OF SILT AND POLLUTANTS. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: BREAKWATER, HARBOR, RECREATION, HABITAT, SEDIMENTATION, BENTHOS, CR 1

****
REF. NO.-0356

HAJE, R.L. 1976.

THE EFFECTS OF THE NEW YORK STATE TIDAL WETLANDS ACT, MORATORIUM PHASE.

SUNY MARINE SCI. RES. CENT. SPEC. REP. 4. 40 PP. + APPENDICES.

A REVIEW OF THE MORATORIUM APPLICATIONS MADE TO THE DEPARTMENT OF ENVIRONMENTAL CONSERVATION INDICATES THAT NO AUTHORIZED WETLANDS LOSSES OCCURRED IN SOME TOWNSHIPS WHILE MINIMAL LOSSES OCCURRED IN OTHERS. A TOTAL LOSS OF APPROXIMATELY 20 ACRES WAS CALCULATED. AN ADDITIONAL UNDETERMINED AMOUNT WAS LOST THROUGH ILLEGAL ACTIVITIES. A TREND TOWARD MORE ENVIRONMENTALLY

ACCEPTABLE PROJECTS IS DEVELOPING. A SURVEY OF INDIVIDUALS WITH VARIED INTERESTS IN THE TIDAL WETLANDS ACT INDICATES THAT IT IS HAVING AN ECONOMIC EFFECT UPON BUSINESSES AND LAND VALUES. WHILE MOST RESPONDENTS WERE SATISFIED WITH THE ADMINISTRATION OF THE ACT, THEY WERE UNANIMOUS IN CRITICISM OF DELAYS IN RENDERING DECISIONS AFTER PUBLIC HEARINGS. IT IS CONCLUDED THAT THE TIDAL WETLANDS ACT IS HAVING A BENEFICIAL EFFECT UPON THE PRESERVATION OF WETLANDS.
(MODIFIED AUTHOR ABSTRACT)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0372

HALL, J.R. 1977.

DISCUSSION CONCERNING FLORIDA KEYS BRIDGE REPLACEMENT AND OTHER STRUCTURES.

AREA SUPERVISOR, NATIONAL MARINE FISHERIES SVC., PANAMA CITY, FL. PERS. COMM.

A MAJOR REGIONAL CONCERN ABOUT THE FLORIDA KEYS BRIDGE REPLACEMENT PROJECT IS THE AMOUNT OF IRREVERSIBLE REMOVAL OF HABITAT WHICH IT WILL CAUSE. HABITAT MUST BE PROTECTED SINCE WE ARE NOT YET AT THE STAGE OF MANAGING IT. WHEN BULKHEADS ARE USED, RIPRAP APRONS AT THEIR BASES ARE RECOMMENDED TO CREATE HABITAT AND DISSIPATE ENERGY. SOME STRUCTURES ATTRACT FISH AND SERVE AS ARTIFICIAL REEFS. OFTEN IMPORTANT SECONDARY IMPACTS OCCUR WHEN FISHERMEN DUMP GARBAGE.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: INT

DESCRIPTORS: BRIDGE, CAUSEWAY, BULKHEAD, CR 4, HABITAT

****
REF. NO.-0059

HALL, J.V., JR. 1967.

WAVE TESTS OF REVETMENT USING MACHINE-PRODUCED INTERLOCKING BLOCKS.

U.S. ARMY CORPS OF ENGINEERS. CERC REPRINT 2-67. 12 PP.

CONTINUED DEMAND FOR RELATIVELY LOW-COST SHORE PROTECTION IN BAYS, ESTUARIES AND COMPARABLE BODIES OF WATER HAS RESULTED IN ACCELERATED INVESTIGATION IN THIS AREA. FURTHER, THERE IS A GREAT DEMAND FOR A SYSTEM THAT CAN BE CONSTRUCTED BY THE INDIVIDUAL PROPERTY OWNER WITHOUT RECOURSE TO A CONTRACTOR OR SPECIAL CONSTRUCTION EQUIPMENT. THIS PAPER REPORTS ON THE DEVELOPMENT OF LIGHT-WEIGHT BLOCK REVETMENTS THROUGH TESTS IN THE LARGE WAVE TANK AT CERC. TWO TYPES OF BLOCK WERE TESTED ON A 1 ON 2 SLOPE WITH WAVE HEIGHTS FROM 1.5 TO 6.2 FEET AND WAVE PERIODS FROM 3.0 TO 6.0 SECONDS. DURING THE TESTS OBSERVATIONS WERE MADE REGARDING THE DISPLACEMENT OF BLOCKS AND THE VERTICAL MOVEMENT OF THE FACE OF THE SLOPE WHEN ATTACKED BY WAVES. DATA DERIVED FROM THE TESTS HAVE PROVIDED INFORMATION WHICH HAS RESULTED IN THE

REF. NO.-0059 (CONTINUED)

DEVELOPMENT OF MACHINE PRODUCED BLOCK WHICH REMAINED STABLE UNDER THE CONTINUOUS ATTACK OF 4.7-SECOND 4.8-FOOT BREAKING WAVES. COMPARATIVE TESTS SHOWED THAT THE MACHINE-PRODUCED TONGUE-AND-GROOVE BLOCKS HAVE GREATER STABILITY THAN THE HAND-PRODUCED SHIPLAP TYPE. (MODIFIED AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: REVETMENT, PROTECT

****
REF. NO.-0252

HALL, J.V., JR. 1952.

ARTIFICIALLY NOURISHED AND CONSTRUCTED BEACHES.

U.S. ARMY CORPS OF ENGINEERS. BEB. TECH. MEMO. NO. 29. 25 PP.

THE PURPOSE OF THIS PAPER IS: FIRST, TO OUTLINE THE CRITERIA PERTINENT TO THE DESIGN OF ARTIFICIALLY NOURISHED BEACHES AND EXPLAIN HOW EACH IS DERIVED AND USED; SECOND, TO PRESENT A BRIEF HISTORY OF FIVE AREAS WHERE THE FOUR TYPES OF ARTIFICIAL NOURISHMANT HAVE BEEN TRIED, NAMELY THE OFFSHORE DUMPING METHOD, THE STOCKPILING METHOD, THE CONTINUOUS SUPPLY METHOD, AND THE DIRECT PLACEMENT METHOD; AND THIRD, TO PRESENT A TABULAR RECORD OF A GREAT NUMBER OF ARTIFICIALLY NOURISHED AND CONSTRUCTED BEACHES INCLUDING FACTORS RELATING TO THEIR PLACEMENT AND ECONOMIC LIFE.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: DREDGE/FILL, EROSION, LITTORAL PROCESSES, LITTORAL PROCESSES

****
REF. NO.-0424

HALL, J.V., JR. 1963.

COASTAL ENGINEERING STRUCTURES.

U.S. ARMY CORPS OF ENGINEERS. BEB ANN. BULL. 17:16-27.

THIS PAPER DESCRIBES THE PHYSICAL CHARACTERISTICS OF BASIC COASTAL ENGINEERING STRUCTURES IN GENERAL USE, THE BEHAVIOR OF INDIVIDUAL STRUCTURES AND THEIR BEHAVIOR WHEN GROUPED AS A SYSTEM. ALSO DESCRIBED IS A TYPICAL EXAMPLE OF PLANNING FOR COASTAL ENGINEERING WORKS. A NUMBER OF DRAWINGS OF TYPICAL STRUCTURES IS INCLUDED, AS ARE PHOTOGRAPHS OF STRUCTURES IN PLACE. (MODIFIED AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

REF. NO.-0424 (CONTINUED)

DESCRIPTORS: LITTORAL PROCESSES, BULKHEAD, REVETMENT, JETTY, BREAKWATER

****
REF. NO.-0043

HALL, V.L. LUDWIG, J.D. 1975.

EVALUATION OF POTENTIAL USE OF VEGETATION FOR EROSION ABATEMENT ALONG THE GREAT LAKES SHORELINE.

U.S. ARMY CORPS OF ENGINEERS. CERC MISC. PAP. NO. 7-75. 36 PP.

THIS STUDY IDENTIFIES PLANTS WITH POTENTIAL, EITHER ALONE OR IN COMBINATION WITH STRUCTURES, TO ALTER THE EROSION RATE ALONG SHORES OF THE GREAT LAKES. INFORMATION WAS OBTAINED FROM LITERATURE, PERSONAL INTERVIEWS, AND A FIELD SURVEY. SHORELINE PLANTS WERE IDENTIFIED AND EVALUATED. THIRTY-THREE TERRESTRIAL SPECIES WERE FOUND THAT EFFECTIVELY DECREASED SURFACE EROSION RESULTING FROM WIND AND RUNOFF. NO EMERGENT OR SUBMERGENT PLANTS WERE FOUND TO CONTROL EROSION. WHILE SEVERAL EMERGENT SPECIES MAY HAVE SPECIAL USE IN LOW-ENERGY AREAS, THE GREAT LAKES SHORES IN THE UNITED STATES ARE GENERALLY NOT CONDUCIVE TO ESTABLISHMENT OF AQUATIC PLANTS. SHORES SUBJECT TO WAVE EROSION REQUIRE STRUCTURES OR BEACH NOURISHMENT TO ATTENUATE WAVE ENERGY. AFTER THE WAVE FORCE IS REDUCED BY ENGINEERING TECHNIQUES, VEGETATION WILL AID IN CONTROLLING SURFACE EROSION. SUBSURFACE SEEPAGE AND SOIL SLUMPING, WHICH CAUSE LANDSLIDES AND BANK RECESSION, CAN BE PREVENTED BY DEWATERING GLACIAL TILL; RECESSION OF SANDY SHORES WITH STEEP BANKS CAN BE CONTROLLED BY BANK RESLOPING. THE STUDY CONCLUDES THAT PLANTS ALONE ARE NOT SUITABLE FOR USE AS EROSION CONTROLLERS ALONG MOST SHORES OF THE GREAT LAKES BECAUSE OF SEVERE WAVE ACTION. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: EROSION, STABILIZE, BULKHEAD, JETTY, REVETMENT, GROIN, CR 8, PROTECT

****
REF. NO.-0154

HALL, W.C. 1940.

A MODEL STUDY OF THE EFFECT OF SUBMERGED BREAKWATERS ON WAVE ACTION.

U.S. ARMY CORPS OF ENGINEERS. BEB TECH. MEMO. NO. 1. 33 PP.

IN ORDER TO EVALUATE DESIGN OF UNDERWATER BREAKWATERS IN REDUCING WAVE IMPACT ON BEACHES, A STUDY USING VARIOUS SHAPES OF MODELS IN A WAVE TANK WAS UNDERTAKEN. THE VELOCITY, WAVE PERIOD, HEIGHT AND LENGTH WERE MEASURED SEAWARD OF THE THREE EXPERIMENTAL DESIGNS: TRAPEZODIAL, TRIANGULAR AND A VERTICAL WALL. THESE SAME PARAMETERS WERE MEASURED LANDWARD OF THE BREAKWATERS. MOTION PICTURES WERE TAKEN OF THE WAVE PROFILES THROUGH GLASS PORTS WHICH HAD A SCALE ETCHED ON THEM THE EFFECT OF SUBMERGENCE IS DISCUSSED. CONCLUSIONS ARE THAT AN UNDERWATER STRUCTURE PARALLEL TO A SHORE LINE WILL DECREASE WAVE HEIGHT AND ACTION ON A SHORE. A VERTICAL WALL IS THE MOST EFFECTIVE. THE EXTENT TO WHICH WAVE ACTION WILL BE REDUCED CAN BE CONTROLLED BY THE HEIGHT OF THE STRUCTURE. IN CASE PROTECTION FROM STORM WAVE ACTION IS DESIRED, THE STRUCTURE SHOULD BE BUILT TO A SUBMERGENCE OF 1.2 OR LESS.

REF. NO.-0154 (CONTINUED)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0041

HANDIN, J.W. LUDWICK, J.C. 1950.

ACCRETION OF BEACH SAND BEHIND A DETACHED BREAKWATER.

U.S. ARMY CORPS OF ENGINEERS. BEB TECH. MEMO. NO. 16. 13 PP.

THE PROBLEM OF SAND TRANSPORT BY A LONGSHORE CURRENT IS CLARIFIED BY OBSERVING THE EFFECT OF A BREAKWATER ON THIS CURRENT. SAND SAMPLES WERE COLLECTED ON A NETWORK FROM THE BEACHES IN THE VICINITY OF THE BREAKWATER AT SANTA MONICA, CA. THE DISTRIBUTION OF MEDIAN GRAIN SIZES IS EVIDENCE FOR A REDUCTION OF THE COMPETENCE OF THE LONG SHORE CURRENT. THE HISTORY OF SHORE LINE CHANGES DISCLOSES AN ACCOMPANYING REDUCTION IN THE CAPACITY OF THE CURRENT. A DECREASE IN TRANSPORTING POWER OF THE LONGSHORE CURRENT IS CORRELATED WITH A DECREASE IN Q, THE LITTORAL DRIFT FACTOR, SO THAT Q CAN PROBABLY BE USED AS A QUALITATIVE MEASURE OF THE SAND TRANSPORTING POWER OF LONGSHORE CURRENTS. THE HISTORY OF ACCRETION INDICATES THAT A SHORE LINE CHANGES POSITION IN A DIRECTION TOWARD EQUILIBRIUM WITH RESPECT TO THE FORCES ACTING ON A BEACH. GIVEN ENOUGH TIME, IT IS PROBABLE THAT THE BREAKWATER WILL BECOME CONNECTED TO THE MAINLAND.
(AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: BREAKWATER, LITTORAL PROCESSES, CR 2, PROTECT

****
REF. NO.-0501

HARRIS, A.J. THOMAS, J.M. 1974.

THE HARRIS FLOATING BREAKWATER.

PP. 213-232 IN PROC. FLOATING BREAKWATERS CONFERENCE, NEWPORT, RI. TECH. SER. NO. 24. (Q.V. KOWALSKI, 1974A).

A BASIC FEATURE OF THE HARRIS BREAKWATER (AND THE DIFFERENCE BETWEEN IT AND THE BOMBARDON) IS THAT IT PRESENTS A THIN HORIZONTAL BARRIER TO WAVE MOTION AND CAUSES DISSIPATION OF WAVE ENERGY WITHOUT CREATING MAJOR STRESSES IN THE STRUCTURE AND MOORINGS. EXTENSIVE TESTS WERE CARRIED OUT IN THE SOLENT ON A ONE-TENTH SCALE MODEL. THE TEST CONFIRMED EARLIER OPINION, AND BECAUSE TEST READINGS CO-RELATED THE STRUCTURAL CHARACTERISTICS AND NATURAL SEA-STATE CONDITIONS, BASIC DESIGN FORMULAS WERE ESTABLISHED AND THE CALCULATIONS CHECKED AGAINST ACTUAL RESULTS. THE APPLICATION OF THE HARRIS BREAKWATER HAS BEEN EXTENDED FROM MARINAS TO THE PROTECTION OF MOORINGS FOR DEEP SEA FREIGHTERS AND, COMBINED WITH THE S.B.M., FOR

REF. NO.-0501 (CONTINUED)

SUPER-TANKERS. (MODIFIED AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUR

DESCRIPTORS: PROTECT, BREAKWATER

****
REF. NO.-0249

HARRIS, R.W. INMAN, D.L. BAILARD, J.A. ODA, R.L. 1976.

STUDY AND EVALUATION OF REMEDIAL SAND BYPASSING PROCEDURES.

U.S. ARMY CORPS OF ENGINEERS. WES CONTRACT REPORT 11-76-1. 128 PP.

THE PURPOSE OF THIS PROGRAM WAS TO INVESTIGATE AND DEVELOP A PRACTICAL METHOD FOR THE MANAGEMENT OF SAND INFLUENCED BY LITTORAL TRANSPORT. THE WORK COVERED LABORATORY RESEARCH, FIELD INVESTIGATIONS, AND TESTS. INITIALLY, LABORATORY INVESTIGATIONS OF JET PUMPS, CRATER-SINKS, AND FLUIDIZATION WERE CONDUCTED UTILIZING SPECIALLY DESIGNED APPARATUS. DURING THE LABORATORY INVESTIGATIONS A NEW PRINCIPLE OF FLUIDIZATION WAS DEVELOPED. THIS NEW FORM OF FLUIDIZATION IS CALLED 'DUCT-FLOW' FLUIDIZATION. DUCT-FLOW, WHEN USED IN CONJUNCTION WITH THE CRATER-SINK PRINCIPLE, GREATLY EXPANDS THE SCOPE OF SAND MANAGEMENT SYSTEMS. FIELD TESTS OF CRATERS DREDGED ON THE OCEAN FLOOR SHOWED THAT WAVE ACTION CAUSES THE CRATER TO ELONGATE IN A DIRECTION PARALLEL TO THE WAVE CRESTS. THE RESULT IS AN ELIPTICAL SHAPED CRATER. FIELD AND LABORATORY TESTS OF DUCT-FLOW SHOW THAT THE BULK VOLUME FLOW RATE OF SAND FROM THE FLUIDIZER IS PROPORTIONAL TO THE DRIVE-WATER FLOW RATE. THE DIMENSIONS OF A PROTOTYPE DUCT-FLOW SYSTEM APPEAR TO BE ALMOST UNLIMITED. LATER, THE JET PUMP AND FLUIDIZATION APPARATUS WERE OPERATED INDIVIDUALLY IN THE FIELD. FINALLY, A PROTOTYPE FIELD SAND BYPASSING SYSTEM CONSISTING OF A FLUIDIZER INTERCEPTING LITTORAL DRIFT ON A SAND SPIT WAS USED TO FEED A CRATER. SAND WAS REMOVED BY A JET PUMP AND DEPOSITED ON SHORE 89 METERS AWAY. AERIAL PHOTOGRAPHS WERE TAKEN, AND BEACH PROFILES, CRATER, AND FLUIDIZED TRENCH WERE MEASURED THROUGHOUT THE FIELD TESTS. THE FIELD TESTS DEMONSTRATED THAT THE PROTOTYPE SYSTEM EFFECTIVELY INTERCEPTED LITTORAL DRIFT, IN SPITE OF THE DELIBERATELY ADVERSE CONDITIONS ESTABLISHED BY THE INVESTIGATORS.
(MODIFIED AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUR

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

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REF. NO.-0518

HASLER, H.G. 1974.

THE 'SE BREAKER' FLOATING BREAKWATER.

PP. 181-191 IN PROC. FLOATING BREAKWATERS CONFERENCE, NEWPORT, RI. TECH. SER. NO 24. (Q.V. KOWALSKI, 1974A).

REF. NO.-0518 (CONTINUED)

THE CONCEPT OF USING A LONG, STIFF HORIZONTAL SURFACE FOR WAVE ATTENATION EVOLVED DURING FLUME TESTS IN 1963. EACH UNIT IS A LONG, RIGID PONTOON OF SPECIALIZED DESIGN, WITH A UNIVERSAL JOINT AT EITHER END ENABLING A STRING OF UNITS TO BE JOINED TOGETHER. IT MAY BE USED IN FOUR DIFFERENT WAYS: PERMANENTLY MOORED, TEMPORARILY MOORED, CRAWLING, OR FULL MOBILE. POSSIBLE USES ARE DISCUSSED, TOGETHER WITH THE PRACTICAL PROBLEMS THAT HAVE BEEN FACED. ADVANTAGES OF THE DESIGN INCLUDE SHALLOW DRAFT, LIGHT WEIGHT, MODEST MOORING LOADS EVEN IN STRONG CURRENTS, EASE OF TOWING OR SELF-PROPULSION, ABILITY TO TAKE THE GROUND OR BE WINCHED UP A BEACH, SEAWORTHINESS UNDER OVERLOAD CONDITIONS, AND PROVISION FOR CATWALK, DAYMARKS, LIGHTS, AND REFUGE. OVER 60% ATTENUATION OF WAVE HEIGHT IS CLAIMED IN WIND-DRIVEN WAVES OR STEEP SWELL, UP TO THE SIZE OF THE DESIGN WAVE FOR THAT PARTICULAR UNIT.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: BREAKWATER, PROTECT

****
REF. NO.-0510

HASTINGS, R.W. 1972.

THE ORIGIN AND SEASONALITY OF THE FISH FAUNA ON A NEW JETTY IN THE NORTHEASTERN GULF OF MEXICO.

PH.D. THESIS, THE FLORIDA STATE UNIVERSITY, 569 PP.

A TWO AND ONE HALF YEAR STUDY WAS CONDUCTED OF SUCCESSIONAL AND SEASONAL CHANGES OF FISH FAUNA AROUND A NEWLY CONSTRUCTED JETTY AT EAST PASS, CHOCTAWHATCHEE BAY, FLORIDA. INFORMATION WAS OBTAINED BY DIVING OBSERVATIONS AND SPECIMEN COLLECTION. OBSERVATIONS WERE ALSO MADE AND COMPARED WITH OLDER JETTY HABITATS. THE JETTIES WERE COLONIZED SOON AFTER CONSTRUCTION BY SPECIES COMMON TO THE AREA ORIGINALLY, BY SPECIES FROM OTHER HABITAT AREAS SUCH AS OFFSHORE REEFS, AND BY TROPICAL SPECIES CARRIED BY CURRENTS

NATURE OF REFFRENCE: BIO

TYPE OF REFERENCE: THESIS

DESCRIPTORS: CR 3, JETTY, FISH, SUCCESSION

****
REF. NO.-0391

HAVEN, K.F. 1975.

A METHODOLOGY FOR IMPACT ASSESSMENT IN THE ESTUARINE/MARINE ENVIRONMENT.

(ERDA) LAWRENCE LIVERMORE LAB, UNIV. OF CALIFORNIA, LIVERMORE CA.

IMPACTS ON THE ESTUARINE/MARINE ENVIRONMENT CAN BE ASSESSED IN ECONOMIC TERMS BY TRACING THE IMPACT FLOW OUT OF THE ECONOMIC SECTOR THROUGH THE MARINE ENVIRONMENT AND BACK INTO THE

REF. NO.-0391 (CONTINUED)

ECONOMIC SECTOR AS CHANGES IN NATURAL RESOURCE AVAILABILITY. AN IMPACT CAN THEN BE MEASURED BY THE CHANGES CREATED IN THE ECONOMIC SECTOR BY CHANGES IN RESOURCE AVAILABILITY. PRIMARY EMPHASIS IS PLACED ON THE DEVELOPMENT OF AN APPROPRIATE ECOLOGICAL MODEL OF THE ESTUARINE ENVIRONMENT FOR THIS PURPOSE. TWO TYPES, AN ECOLOGICAL INPUT/OUTPUT MODEL AND A DYNAMIC (DIFFERENCE EQUATION) MODEL, ARE PROPOSED. ACCEPTABILITY CRITERIA FOR THESE MODELS INCLUDE THE ABILITY TO TRACK LETHAL AND SUBLETHAL, DIRECT AND INDIRECT (FOOD WEB), AND SHORT-AND LONG-TERM EFFECTS OF A VARIETY OF POLLUTANTS RELATED TO THE PRODUCTIONS AND USE OF VARIOUS ENERGY RESOURCES. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0271

HEISER, D.W. FINN, E.L., JR. 1970.

OBSERVATIONS OF JUVENILE CHUM AND PINK SALMON IN MARINA AND BULKHEADED AREAS.

STATE OF WASHINGTON DEPT. OF FISHERIES, MANAGEMENT AND RESEARCH DIVISION. SUPPLEMENTAL PROGRESS REPORT, PUGET SOUND STREAM STUDIES. 28 PP.

A MARINA STUDY AND BULKHEAD AND BREAKWATER CONFIGURATION STUDY WAS CONDUCTED TO DETERMINE THEIR AFFECTS ON CHUM AND PINK SALMON FRY. FIVE MARINAS WERE STUDIED CLOSELY FOR WATER QUALITY AND SALMON CONDITION. MANY DIFFERENT TYPES OF BULKHEAD AND REVETMENT DESIGNS WERE OBSERVED IN AN ATTEMPT TO FIND A DESIGN WHICH WOULD MINIMIZE SALMON FRY DANGER. AS A RESULT OF THIS STUDY A LIST OF BULKHEAD DESIGNS WAS MADE WITH EACH TYPE EVALUATED. IT WAS DISCOVERED THAT MARINAS OF PROPER DESIGN ACTUALLY INCREASE THE RESISTANCE OF FRY TO PREDATOR ATTACK. IN CONCLUSION SEVERAL RECOMMENDATIONS FOR MARINA AND BULKHEAD DESIGNS WERE MADE.

NATURE OF REFERENCE: BIO, ENG

TYPE OF REFERENCE: GOV REP

DESCRIPTORS: BULKHEAD, HARBOR, CR 1, FISH, REVETMENT

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REF. NO.-0387

HEITZ, J.G. 1976.

WETLAND USE IN WISCONSIN: PRESENT POLICIES AND REGULATIONS.

WISCONSIN DEPT. NAT. RES. MADISON, WI. 24 PP.

THIS REPORT IS ONE OF A SERIES OF REPORTS WRITTEN FOR THE STATEWIDE WATER RESOURCES PLAN. THE PURPOSES OF THE PLAN ARE TO DESCRIBE WATER RESOURCE MANAGEMENT ALTERNATIVES, EXAMINE TRADEOFFS ASSOCIATED WITH EACH, SOLICIT PEOPLE'S PREFERENCES WITH RESPECT TO THE ALTERNATIVES, AND

REF. NO.-0387 (CONTINUED)

PRESENT THIS INFORMATION TO DECISION MAKERS. THIS REPORT PRESENTS AN OVERVIEW OF THE MOSAIC OF POLICIES, REGULATIONS, AND LAWS WHICH APPLY TO WISCONSIN WETLANDS (MODIFIED AUTHOR ABSTRACT)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0524

HENRY, W.T. WEBB, D.A. 1974.

CREOSOTE, A REVIEW OF ITS POSITION AS A WOOD PRESERVATIVE.

AMERICANWOOD-PRESERVER'S ASSOCIATION. 7 PP.

HISTORICALLY IT HAS BEEN SHOWN THAT THE SERVICEABILITY OF WOOD CAN BE INCREASED SIGNIFICANTLY THROUGH THE USE OF A WOOD PRESERVATIVE. CREOSOTE TREATMENT PREVENTS OR SUBSTANTIALLY REDUCES THE RATE OF ATTACK BY WOOD DESTROYING ORGANISMS SUCH AS FUNGI, TERMITES AND MARINE BORERS. THUS, THE SERVICE LIFE OF WOOD IS SUBSTANTIALLY LENGTHENED BY TREATING WITH THIS PRESERVATIVE. IN FACT, THE USEFUL LIFE OF WOOD IS EXTENDED MORE THAN FIVE TIMES THROUGH THE PRESSURE IMPREGNATION OF PRESERVATIVES. THE USE OF CREOSOTE AS A WOOD PRESERVATIVE DATES BACK TO THE 19TH CENTURY. MOLL (1836) AND OTHERS EXPERIMENTED WITH THE USE OF CREOSOTE; HOWEVER, ITS USE WAS LIMITED UNTIL THE BETHELL (1838) 'FULL-CELL' PATENTED PROCESS WAS DEVELOPED. THE APPLICATION OF AN INITIAL VACUUM FOLLOWED BY PRESSURE FOR THE IMPREGNATION OF THE CREOSOTE FORMED A BASIS FOR THE PRESENT WOOD TREATING INDUSTRY. (AUTHOR ABSTRACT)

NATURE OF REFFRENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: PILING

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REF. NO.-0320

HERBICH, J.B. SCHILLER, R.E., JR. 1976.

SHORE PROTECTION.

MARINE ADVISORY BULLETIN. SEA GRANT PUBL. TAMU-SG-76-504. 5 PP.

THE NEED FOR PROTECTIVE MEASURES AGAINST SHORE EROSION IN THE GULF OF MEXICO IS DISCUSSED. THE RESULTS OF A PREVIOUS SHORELINE STUDY INDICATE THAT THE PROBLEM IS CRITICAL. BEFORE DETERMINING REQUIRED CORRECTIVE MEASURES, SEVERAL POINTS SHOULD BE CONSIDERED INCLUDING PREVAILING DIRECTION OF LITTORAL DRIFT, ANGLE OF WAVE ATTACK, SHORE CHARACTERISTICS, EFFECTS THAT CORRECTIVE MEASURES WILL HAVE DOWNSHORE AND OTHERS. THE USE OF GROINS, JETTIES, BREAKWATERS, BULKHEADS, AND REVETMENTS ARE CONSIDERED. RELOCATION IS ALSO SUGGESTED AS A VIABLE ALTERNATIVE.

REF. NO.-0320 (CONTINUED)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: EROSION, GROIN, JETTY, BREAKWATER, BULKHEAD, REVETMENT, DREDGE/FILL, LITTORAL PROCESSES
,
CR 3, PROTECT

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REF. NO.-0497

HERBICH, J.B. KO, S.C. 1968.

SCOUR OF SAND BEACHES IN FRONT OF SEAWALLS.

PP. 622-643 IN PROC. 11TH CONFERENCE ON COASTAL ENGINEERING, LONDON, ENGLAND. VOL. I.

MANY PREVIOUS STUDIES WERE CONFINED TO PROBLEM OF BEACH EROSION DUE TO WAVES BREAKING ON THE STRUCTURE. THE INVESTIGATION REPORTED HERE INVOLVED REGULAR NON-BREAKING, SHALLOW WATER WAVES PROGRESSING TOWARD A SEAWALL. AN ANALYTICAL SOLUTION WAS DEVELOPED AND COMPARED WITH LABORATORY-SCALE EXPERIMENTS. THE SHALLOW-WATER WAVE THEORY AND BOUNDARY LAYER EQUATIONS WERE USED IN THEORETICAL DEVELOPMENT, WHICH RESULTED IN A MATHEMATICAL MODEL FOR THE ULTIMATE SCOUR DEPTH IN FRONT OF A SEAWALL. THE THEORETICAL EQUATION FOR SCOUR IS GIVEN IN THE TEXT. THE COMPARISON BETWEEN THEORETICALLY CALCULATED VALUES AND EXPERIMENTAL RESULTS INDICATES FAIRLY GOOD AGREEMENT. THE MODEL EXPERIMENTS ALSO INDICATE THAT DEPTH OF SCOUR DEPENTS TO A LARGE EXTEND ON WAVE CHARACTERISTICS AND THAT SCOUR LENGTH (DISTANCE BETWEEN SCOUR TROUGH OR CRESTS) IS INDEPENDENT OF TIME, BUT IS A FUNCTION OF INCIDENT WAVE LENGTH. IN CONSIDERING THE MODEL THE MOST IMPORTANT FACTORS AFFECTING RIPPLE FORMATION ARE WATER VELOCITY AND SAND DIAMETER. THE SCOUR LENGTH IS INDEPENDENT OF TIME AND ONLY A FUNCTION OF WAVE LENGTH. IT IS ALSO CONCLUDED THAT, THE 'ULTIMATE' SCOUR LIMIT IS APPROACHED ASYMPTOTICALLY. (MODIFIED AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUR

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0170

HERRON, W.J. HARRIS, R.L. 1966.

LITTORAL BYPASSING AND BEACH RESTORATION IN THE VICINITY OF PORT HUENEME, CALIFORNIA.

PP. 651-675 IN: PROC. TENTH COASTAL ENG. CONF. VOL 1.

PORT HUENEME HARBOR, CALIFORNIA, CONSTRUCTED IN 1940, RESULTED IN AN AVERAGE ANNUAL EROSION OF 1,200,000 CUBIC YARDS FROM THE SHORELINE DOWNCOAST OF THE HARBOR. THE CAUSE WAS DIVERSION BY THE NORTH JETTY OF THE HARBOR OF LITTORAL SAND MOVEMENT INTO THE HUENEME CANYON. A GOOD BYPASS SYSTEM WAS ESTABLISHED IN 1960-61 BY CONSTRUCTION, ONE MILE UPCOAST, OF CHANNEL ISLANDS HARBOR FRONTED BY AN OFFSHORE BREAKWATER 2,300 FEET IN LENGTH AND LOCATED ON THE 30-FOOT-DEPTH

REF. NO.-0170 (CONTINUED)

CONTOUR. THIS BREAKWATER SERVES A DUAL FUNCTION OF SHELTERING THE HARBOR ENTRANCE AND ACTING AS A LITTORAL SAND TRAP. THREE CYCLES OF BIENNIAL LITTORAL SAND BYPASSING HAVE BEEN SUCCESSFULLY COMPLETED RESULTING IN SUPPLY OF 11,000,000 CUBIC YARDS OF SAND TO THE ERODING SHORELINE AT AN AVERAGE ANNUAL COST OF $0.40 PER CUBIC YARD, INCLUDING ANNUAL MAINTENANCE AND AMORTIZATION OF STRUCTURES. COMPARISON OF DESIGN OF THE STRUCTURE TO THE IMPOUNDING CHARACTERISTICS EXPERIENCED DURING THREE BYPASS CYCLES INDICATES THAT THE DIMENSIONS AND CAPACITY OF A SAND TRAP FORMED BY AN OFFSHORE BREAKWATER CAN BE BASED UPON THE DIFFRACTION PATTERNS OF PREVAILING WAVE TRAINS AT THE TWO ENDS OF THE STRUCTURE AND IS INDEPENDENT OF THE DEPTH AND DIMENSIONS OF THE ENTRAPMENT AREA. RATE OF IMPOUNDMENT IS EQUAL TO THE RATE OF LITTORAL DRIFT AT PORT HUENEME. (AUTHOR ABSTRACT)

NATURE OF REFFRENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: BREAKWATER, PROTECT, LITTORAL PROCESSES, ECONOMICS, HARBOR, CR 2

****
REF. NO.-0151

HERRON, W.J., JR. 1972.

CASE HISTORY OF MISSION BAY INLET, SAN DIEGO, CA.

U.S. ARMY CORPS OF ENGINEERS. CERC REPRINT NO. 11-739. 23 PP.

MISSION BAY INLET WAS DESIGNED AS A 'NON-SCOURING' ENTRANCE CHANNEL BY THE LOS ANGELES DISTRICT, CORPS OF ENGINEERS, IN 1946. CONSTRUCTION OF THE INLET WAS COMPLETED IN 1959 AND THE ENTIRE PROJECT IN 1963. A CHANNEL WITH OVER TWICE THE CROSS-SECTIONAL AREA REQUIRED BY THE 'O'BRIEN' EQUATION WAS DEVELOPED TO REDUCE THE AVERAGE CROSS-SECTIONAL TIDAL CURRENTS TO LESS THAN 2 FEET PER SECOND. THE DESIGN DEPTH OF -20 FEET MLLW ELIMINATED BOTTOM MOVEMENT INDUCED BY WAVE ACTION-EXCEPT DURING THE MOST SEVERE STORMS. THE JETTIES WERE SEALED TO THE +4 FOOT ELEVATION AND EXTEND TO THE -25 FOOT DEPTH ALMOST ENTIRELY ELIMINATING THE INTRUSION OF LITTORAL DRIFT. THE CHANNEL HAS SHOALED AT A RATE OF LESS THAN 20,000 CUBIC YARDS PER YEAR SINCE FINAL DREDGING IN 1959, INDICATING THE SOUNDNESS OF THIS DESIGN. (NTIS ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0312

HILL, P.G. 1976.

SUMMARY OF MARINE ACTIVITIES OF THE COASTAL PLAINS REGION.

COASTAL PLAINS CENTER FOR MARINE DEVELOPMENT SERVICES. 84 PP.

THIS PUBLICATION SUMMARIZES CURRENT RESEARCH AND ADVISORY SERVICE ACTIVITIES AND PROJECTS OF

REF. NO.-0312 (CONTINUED)

THE MAJOR MARINE AND COASTAL ORGANIZATIONS IN THE COASTAL PLAINS REGION. IT INCLUDES INFORMATION ABOUT THE PURPOSE AND FUNCTIONS OF EACH OF THESE ORGANIZATIONS AS A WHOLE AND ENOUGH INFORMATION ABOUT INDIVIDUAL ACTIVITIES AND PROJECTS TO ALLOW CONTACTS TO BE MADE. ITS PRIMARY AIM IS TO INFORM RESEARCHERS OF WHAT IS BEING DONE IN THEIR PARTICULAR FIELDS OF INTEREST AND WHERE IT IS BEING DONE.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: BIBLIOGRAPHY

****
REF. NO.-0038

HOCHMAN, H. 1967.

CREOSOTED WOOD IN A MARINE ENVIRONMENT - A SUMMARY REPORT.

PROC. AMER. WOOD-PRESERVERS' ASSN. PP. 138-150.

A NUMBER OF NOTIONS CONCERNING THE BEHAVIOR OF CREOSOTE IN MARINE ENVIRONMENTS ARE EXAMINED. AMONG THESE ARE MECHANICAL LOSS, LEACHING, THRESHOLD CONCENTRATION, RESERVOIR EFFECTS AND BIOENVIRONMENT. THE RELATIONSHIP BETWEEN THESE FACTORS AND THE SERVICE LIFE OF CREOSOTED WOOD IS ANALYZED AND THE CONCLUSION IS DRAWN THAT CREOSOTE PROTECTS WOOD FOR LONG PERIODS OF TIME IN COLD-WATER HARBORS BUT NOT IN WARM- WATER HARBORS HAVING A HIGH POPULATION OF LIMNORIA TRIPUNCTATA. SUGGESTIONS ARE OFFERED TO INCREASE THE SERVICE LIFE OF CREOSOTED WOOD IN WARM-WATER HARBORS. THE PRESENCE AND RELATIVE ABUNDANCE OF LIMNORIA TRIPUNCTATA IS A MAJOR FACTOR IN THE LIFE SPAN OF PILINGS. LIFE SPAN MAY BE EXTENDED BY A DOUBLE TREATMENT, FIRST WITH A MATERIAL TOXIC TO LIMNORIA, FOLLOWED BY CREOSOTE. WRAPPING PILING IN METAL OR PLASTIC IS ALSO HELPFUL. (MODIFIED AUTHOR ABSTRACT)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: PILING, SUPPORT

****
REF. NO.-0147

HOCKETT, C.A. 1976.

URBANIZATION AND SHORELINE DEVELOPMENT OF LAKE WASHINGTON.

MS THESIS. UNIVERSITY OF WASHINGTON, SEATTLE. 210 PP.

A STUDY OF THE IMPACTS OF URBANIZATION OF LAKE WASHINGTON WAS CONDUCTED. THE STUDY INVOLVED RESEARCH RELATED TO THE PHYSICAL CHARACTERISTICS OF THE LAKE, HISTORICAL BACKGROUND, THE EXTENT OF URBANIZATION WITHIN A SPECIFIED REGION AROUND THE LAKE, CHANGES WHICH HAVE OCCURRED IN THE CONFIGURATION OF THE LAKESHORE, AND THE EXTENT OF PIERS AND OVERWATER STRUCTURES ON THE

REF. NO.-0147 (CONTINUED)

LAKE. IT IS CONCLUDED THAT POSSIBLE FUTURE TRANSITION OF THE LAKE SYSTEM DUE TO URBAN DEVELOPMENT, WOULD BE OF MUCH LESS MAGNITUDE THAN THE CUMULATIVE TRANSITION WHICH THE LAKES AQUATIC SYSTEM HAS ALREADY MADE. THEREFORE, THE INCREASE OF LAKE SURFACE COVERAGE AND POSSIBLE LOSS OF LAKE SURFACE WHICH COULD OCCUR AS A RESULT OF URBAN DEVELOPMENT, SHOULD BE CONSIDERED AS ACCEPTABLE CONSEQUENCES OF INCREASING URBANIZATION. IT IS RECOMMENDED THAT THE CONTROLS AND PERMIT PROCESSING REQUIREMENTS OF GOVERNMENTAL ENTITIES AND AGENCIES FOR PIERS, BULKHEADS, AND FILLS FOR RESIDENTIAL DEVELOPMENT, BE SUBJECTED TO THE MINIMAL ADMINISTRATIVE REQUIREMENTS, AND THAT THE EFFORT BE DIVERTED TO INCREASING THE SCRUTINY OF LARGE DEVELOPMENTS.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: THESIS

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0063

HORIKAWA, K. SONU, C. 1968.

AN EXPERIMENTAL STUDY ON THE EFFECT OF COASTAL GROINS.

COASTAL ENG.IN JAPAN. 1:59-74.

SIMULATED COASTAL CONDITIONS WERE PROVIDED TO TEST THE EFFECTIVENESS OF GROINS. THE PRIMARY OBJECTIVE WAS TO DEMONSTRATE THAT THE FLOW PATTERNS IN THE VICINITY OF COASTAL GROINS WERE MORE COMPLICATED THAN REALIZED. ALTHOUGH THE LABORATORY RESULTS SUPPORTED FLOW COMPLEXITY, FIRM CONCLUSIONS ARE PENDING ACTUAL STUDY IN THE FIELD.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUR

DESCRIPTORS: GROIN, STABILIZE, LITTORAL PROCESSES

****
REF. NO.-0103

HOUSE COMMITTEE ON GOVERNMENT OPERATIONS. 1973.

PROTECTING AMERICA'S ESTUARIES: FLORIDA (PART 1-A).

NINETY-THIRD CONGRESS, FIRST SESSION.

HEARINGS WERE HELD ON THE ENVIRONMENTAL PROBLEMS AFFECTING FLORIDA'S ESTUARIES, AND COASTAL AND OTHER WATERS. CONSIDERATIONS INCLUDED: THE SWIFTNESS, ECONOMY, AND IMAGINATION WITH WHICH FEDERAL PROGRAMS FOR PROTECTING FLORIDA'S ENVIRONMENT ARE OR ARE NOT BEING CARRIED OUT; THE ADEQUACY OF FEDERAL ENFORCEMENT OF POLLUTION CONTROL LAWS; WHETHER PERSONS WHO ILLEGALLY DREDGE AND FILL WETLANDS ARE BEING PROSECUTED; THE ADEQUACY OF PROTECTION FOR ENDANGERED WILDLIFE; THE CONFLICT BETWEEN REGULATIONS FOR THE PROTECTION OF WETLANDS ISSUED BY THE BUREAU OF SPORT FISHERIES AND WILDLIFE AND THOSE ISSUED BY EPA; THE WATER QUALITY OF VARIOUS TYPES OF

REF. NO.-0103 (CONTINUED)

SUBDIVISION CANALS THAT ARE REGULARLY DEVELOPED IN WETLANDS AREAS; AND CERTAIN USAGE POLICIES. WITNESSES INCLUDED OFFICIALS FROM NOAA, FAA, USDI, USAGE, THE U.S. ARMY, AND FLORIDA STATE AND MUNICIPAL AGENCIES. LETTERS, STATEMENTS, AND RELATED DATA ARE TRANSCRIBED.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: GOV REP

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0146

HURME, A.K. 1974.

A GLOSSARY OF ECOLOGICAL TERMS FOR COASTAL ENGINEERS.

U.S. ARMY CORPS OF ENGINEERS CERC MISC. PAPER NO. 2-74. 18 PP.

A GLOSSARY OF BASIC ECOLOGICAL TERMS COMMONLY ENCOUNTERED IN THE FIELD OF COASTAL ENGINEERING. THE TERMS ARE APPLICABLE TO, BUT NOT NECESSARILY RESTRICTED TO, MARINE AND FRESHWATER ENVIRONMENTS OF THE COASTAL ZONE. TERMS ARE CROSS-REFERENCED AND DEFINED IN NON-TECHNICAL LANGUAGE FOR USE BY NON-ECOLOGISTS. (NTIS ABSTRACT)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: GLOSSARY

****
REF. NO.-0159

H.W. LOCHNER, INC., CONSULTING ENGINEERS. 1975.

NEGATIVE DECLARATION, STATE ROAD 5 (U.S. 1) BRIDGE REPLACEMENTS.

FLORIDA DEPT. OF TRANSPORTATION AND FEDERAL HIGHWAY ADMIN. 93 PP. + APPENDICES.

THE PROPOSED PROJECT INVOLVES THE REPLACEMENT OF 37 DETERIORATING BRIDGES AND CONSTRUCTION OF BRIDGE APPROACHES ON STATE ROAD 5 (U.S. 1) BETWEEN KEY WEST AND TAVERNIER, FLORIDA. THE INTENT OF THE PROPOSED PROJECT IS TO PRESERVE PRESENT ACCESS TO THE FLORIDA KEYS BY REPLACING BRIDGES AND UPGRADING BRIDGE APPROACHES BEFORE STRUCTURAL FAILURES OCCUR AND TO DO THIS WITH MINIMUM ADVERSE ENVIRONMENTAL IMPACT. NO SIGNIFICANT LONG-TERM ADVERSE ENVIRONMENTAL IMPACTS ARE ANTICIPATED; HOWEVER THE FOLLOWING SHORT-TERM ADVERSE IMPACTS ARE EXPECTED: 1) REMOVAL OF SOME NATIVE VEGETATION AND DISRUPTION TO MARINE LIFE; 2) POSSIBLE WATER POLLUTION; 3) DISPLACEMENT OF FAMILIES AND BUSINESSES; 4) NOISE POLLUTION DURING CONSTRUCTION. A NUMBER OF ALTERNATIVES ARE DESCRIBED AND THE RECOMMENDED CHOICES IDENTIFIED.

NATURE OF REFERENCE: GENERAL

REF. NO.-0159 (CONTINUED)

TYPE OF REFERENCE: GOV REP

DESCRIPTORS: BRIDGE, LAND TRANSPORT, CR 4, HABITAT

****
REF. NO.-0142

INMAN, D.L. 1950.

REPORT ON BEACH STUDY IN THE VICINITY OF MUGU LAGOON, CALIFORNIA.

U.S. ARMY CORPS OF ENGINEERS. BEB TECH. MEMO. NO. 14. 19 PP.

INVESTIGATION AND STUDY INDICATE THAT THE BEACHES AND SAND SPITS BORDERING MUGU LAGOON ARE NOT STABLE, AND THAT IMPROVEMENTS IN THIS AREA SHOULD BE UNDERTAKEN WITH CAUTION. ANY CHANGES WILL TEND TO UPSET THE NATURAL BEACH EQUILIBRIUM AND IN SOME CASES MAY RESULT IN FURTHER DEPLETION AND EROSION OF THE NARROW SPITS BORDERING THE LAGOON. LONGSHORE CURRENT STUDIES SHOWED THAT THE COMPLEX BOTTOM TOPOGRAPHY OVER THE MUGU SUBMARINE CANYON HEADS GIVES RISE TO CURRENTS THAT MAY BE OPPOSED IN DIRECTION TO THE CURRENTS ALONG THE STRAIGHT BEACH NORTHWEST OF MUGU. THE ANGLE OF WAVE APPROACH AND THE 'PILING UP' OF WATER AT WAVE CONVERGENCE POINTS APPEAR TO BE THE CONTROLLING FACTORS IN DETERMINING THE DIRECTION OF FLOW OF THE LONGSHORE CURRENTS. THE EFFECT OF (1) SPRING TIDES, (2) HIGHWAVES, AND (3) DIRECTION OF THE LONGSHORE TRANSPORT OF SAND ON THE STABILITY OF THE SPITS BORDERING MUGU LAGOON IS DISCUSSED. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: LITTORAL PROCESSES, CR 2, EROSION, JETTY

****
REF. NO.-0120

ISHIHARA, T. SAWARAGI, T. 1964.

STABILITY OF BEACHES USING GROINS.

PROC. 9TH CONF. ON COASTAL ENG. ASCE PP. 229-303.

THE AUTHORS HAVE CONDUCTED A FIELD INVESTIGATION ON THE STABILITY OF BEACHES, USING GROINS ALONG THE IMAZU AND SAKANO COASTS IN TOKUSHIMA, JAPAN. BASED ON THE SURVEY OF COASTAL CONFIGURATION BETWEEN GROINS AND ON THE ESTIMATION OF THE AMOUNT OF LITTORAL SAND DRIFT IN THE CASE OF NO STRUCTURE, THE STORAGE CAPACITY OF PERMEABLE AND IMPERMEABLE GROINS WAS DETERMINED. IT IS FOUND THAT THE GROINS HAVE TO BE DESIGNED IN TYPES, LENGTH AND INTERVALS UNDER THE CONDITION THAT THE EQUAL AMOUNT OF LITTORAL SAND DRIFT ALONG THE COAST MAY BE SECURED. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: GROIN, STABILIZE, LITTORAL PROCESSES

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REF. NO.-0238

JACHOWSKI, R.A. 1955.

FACTORS AFFECTING THE ECONOMIC LIFE OF TIMBER IN COASTAL STRUCTURES.

U.S. ARMY CORPS OF ENGINEERS. BEB. TECH. MEMO. NO. 66. 23 PP.

THE DURABILITY OF TIMBER IN COASTAL WATERS IS INFLUENCED BY SEVERAL FORMS OF ATTACK. THE THREE MAJOR FORMS OF ATTACK AFFECTING THE LIFE OF TIMBER USED IN COASTAL CONSTRUCTION ARE DECAY, INSECTS, AND MARINE BORERS. SOME TYPE OF TREATMENT TO TIMBER IS NECESSARY FOR MAXIMUM LONGEVITY. SERVICE RECORDS OF TIMBER USED IN VARIOUS COASTAL STRUCTURES ARE PRESENTED. GOOD CONSTRUCTION PRACTICES ALSO PLAY A MAJOR ROLE IN PROLONGING THE USEFUL LIFE OF THESE STRUCTURES.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: PILING, INVERTEBRATES

****
REF. NO.-0230

JEFFERSON, C.A. 1974.

PLANT COMMUNITIES AND SUCCESSION IN OREGON COASTAL SALT MARSHES.

PH. D. THESIS. OREGON STATE UNIVERSITY, CORVALLIS. 192 PP.

A STUDY WAS CONDUCTED TO DETERMINE PLANT SPECIES COMPOSITION, COMMUNITY STRUCTURE, SUCCESSIONAL RELATIONSHIPS, VEGETATIONAL DEVELOPMENT AND PLANT DISTRIBUTIONS IN ESTUARINE SALT MARSHES ON THE PACIFIC COAST OF OREGON. QUADRAT AND TRANSECT SAMPLES OF PLANT PRESENCE AND COVER, COLLECTED FROM APRIL 1971-JUNE 1974, WERE SUBJECTED TO PHYTOSOCIOLOGICAL ANALYSIS AND ORDINATION, RESULTING IN THE IDENTIFICATION OF 6 SALT MARSH VEGETATION TYPES COMPRISED OF 28 COMMUNITIES. THREE MAJOR PATTERNS OF PLANT SUCCESSION WERE APPARENT, INCLUDING THOSE ON SAND AND SILT SUBSTRATES AND IN AREAS SUBJECT TO FRESHWATER RUNOFF. PLANT DISTRIBUTION WAS RELATED TO ELEVATION, AND PHENOLOGY TO TIDAL EXPOSURE AND SALINITY. SOIL AND SOIL WATER SALINITY, AND WATER TABLE DEPTHS. OREGON COASTAL SALT MARSHES ARE A TRANSITION BETWEEN SUBARCTIC AND TEMPERATURE MARSHES, AND ARE SIMILAR IN PHYSIOGNOMY TO BOREAL SALT MARSHES IN SCANDINAVIA.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: THESIS

DESCRIPTORS: DREDGE/FILL, JETTY, CR 1, EROSION, LITTORAL PROCESSES

****
REF. NO.-0068

JOHNSON, J.W. 1975.

LITTORAL PROCESSES AT SOME CALIFORNIA SHORELINE HARBORS.

REF. NO.-0068 (CONTINUED)

SHORE AND BEACH. 43(2):17-22.

THE EXTENSIVE USE OF THE NEARSHORE AREA OF THE CALIFORNIA COAST FOR SHIPPING, FISHING, RECREATION, AND OIL PRODUCTION HAS RESULTED IN THE DEVELOPMENT OF MANY METHODS WHICH PERMIT THE MOST EFFECTIVE AND ECONOMICAL SOLUTION OF THE NUMEROUS ENGINEERING PROBLEMS INVOLVED IN THESE OPERATIONS. SOME OF THESE METHODS RESULTED FROM SPECIFIC RESEARCH PROJECTS DESIGNED TO STUDY THE FUNDAMENTALS OF THE PHENOMENA. VARIOUS DEVELOPMENTS EVOLVED FROM YEARS OF EXPERIENCE IN THE DESIGN, OPERATION, AND MAINTENANCE OF COASTAL STRUCTURES, PARTICULARLY THOSE CONSTRUCTED ALONG THE SOUTHERN CALIFORNIA COAST. EXPERIENCE GAINED FROM BOTH SUCCESSES AND FAILURES CONTRIBUTED TO WIDELY USED PROCEDURES WHERE THE DESIGN OF COASTAL WORKS INVOLVING LITTORAL PROCESSES ARE IMPORTANT.

NATURE OF REFFRENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: LITTORAL PROCESSES, CR 2, EROSION, HARBOR, BREAKWATER, JETTY

****
REF. NO.-0492

JOHNSON, R.B. 1966a.

THE EFFECTS OF ENGINEERING PROJECTS ON THE ECOLOGY OF JONES BAY.

COASTAL FISH. PROJ. REPT., TEX. PARKS WILDL. DEPT. PP. 148-158.

TO PROTECT FROM FLOOD AND STORM DAMAGE THE U.S. ARMY CORPS OF ENGINEERS PROPOSES THE CONSTRUCTION OF A LEVEE SEAWALL TO PROTECT THE CITY OF HITCHCOCK, TEXAS AND VICINITY. THIS HURRICANE LEVEE (11.4 MILES LONG) WILL CROSS JONES BAY AND BASELINE SURVEY RESULTS OF THE BAY FISHERY ARE PRESENTED IN THIS PAPER. NO CONCLUSIONS ARE DRAWN AS TO THE IMPACT THE PROPOSED PROJECT WILL HAVE ON THE JONES BAY FISHERY RESOURCE.

NATURE OF REFFRENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0494

JOHNSON, R.B. 1966b.

THE EFFECTS OF ENGINEERING PROJECTS ON THE ECOLOGY OF MOSES LAKE.

COASTAL FISH. PROJ. REPT., TEXAS PARKS WILDL. DEPT. PP. 159-168.

IN 1964, PRELIMINARY WORK WAS COMPLETED ON A PORTION OF A HURRICANE PROTECTION LEVEE WHICH CROSSED THE MOUTH OF MOSES LAKE, A PROTECTED ESTUARY OF THE GALVESTON BAY SYSTEM. A STUDY WAS

REF. NO.-0494 (CONTINUED)

CONDUCTED TO DETERMINE THE EFFECTS OF THE LEVEE ON THE FISHERY ECOLOGY OF MOSES LAKE. MOSES LAKE PROVIDES IMPORTANT HABITAT AND NURSERY AREAS FOR COMMERCIALLY VALUABLE SPECIES. IT WAS CONCLUDED THAT FACTORS WHICH MIGHT JEOPARDIZE THE VALUE OF THIS ESTUARY SHOULD BE FURTHER INVESTIGATED.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: CR 3, FISH, PROTECT, HABITAT

****
REF. NO.-0329

JOHNSON, R.B., JR. 1974.

ECOLOGICAL CHANGES ASSOCIATED WITH THE INDUSTRIALIZATION OF CEDAR BAYOU AND TRINITY BAY, TEXAS.

TEXAS PARKS AND WILDLIFE DEPT. TECH. SER. NO. 16. 79 PP.

CEDAR BAYOU AND TRINITY BAY WERE STUDIED BEFORE AND AFTER CONSTRUCTION AND OPERATION OF TWO INDUSTRIES. CEDAR BAYOU IS THE DISCHARGE SITE FOR HOUSTON LIGHTING AND POWER COMPANY'S CEDAR BAYOU GENERATING STATION. TRINITY BAY IS THE DISCHARGE SITE FOR THERMAL EFFLUENTS FROM THE POWER PLANT. SUBMERGED VEGETATION DECLINED AFTER THE OPERATION OF THE POWER PLANT. REACTION OF BLUE CRAB, BROWN SHRIMP, WHITE SHRIMP, GULF MENHADEN AND ATLANTIC CROAKER WAS FAVORABLE FROM FALL TO SPRING. (MODIFIED AUTHOR ABSTRACT)

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0058

KAHN, R.A. ROUNSEFELL, G.A. 1947.

EVALUATION OF FISHERIES IN DETERMINING BENEFITS AND LOSSES FROM ENGINEERING PROJECTS.

UNITED STATES FISH AND WILDLIFE SERVICE. SPECIAL SCIENTIFIC REPORT NO. 40. PP. 1-10.

THE TRUE VALUE OF A FISHERY MUST BE REPRESENTED BY ITS CONTRIBUTION TO THE WEALTH OF THE NATION. THIS DOES NOT MEAN MERELY THE PROFIT TO THE INDIVIDUAL FISHERMAN BUT ALL ACTUAL BENEFITS 'TO WHOMSOEVER THEY MAY ACCRUE.' THIS IS THE LANGUAGE SET FORTH BY THE CONGRESS TO GUIDE THE CORPS OF ENGINEERS IN ESTIMATING THE VALUE OF THE BENEFITS WHICH, COMPARED WITH THE COSTS, DETERMINE THE ECONOMIC FEASIBILITY OF FLOOD CONTROL AND OTHER ENGINEERING PROJECTS. BECAUSE FISHERY VALUES OFTEN ASSUME CONSIDERABLE WEIGHT IN DETERMINING THE FEASIBILITY OF ENGINEERING PROJECTS, IT IS IMPORTANT THAT THE BASIS OF EVALUATION BE COMPARABLE WITH THE BASIS USED IN DETERMINING OTHER BENEFITS OR LOSSES. THIS CONCEPT IS EXPLORED IN THIS SPECIAL SCIENTIFIC REPORT.

REF. NO.-0058 (CONTINUED)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0545

KAPLAN, E.H. WELKER, J.R. KRAUS, M.G. 1974.

SOME EFFECTS OF DREDGING ON POPULATIONS OF MACROBENTHIC ORGANISMS.

FISH. BULL. 72(2): 445-480.

POPULATIONS OF EPI- AND INFAUNA WERE STUDIED FROM 10 MONTHS BEFORE TO 11 MONTHS AFTER A NAVIGATION CHANNEL WAS DREDGED THROUGH A SMALL, SHALLOW LAGOON. CURRENT VELOCITIES AND SEDIMENTATION PATTERNS WERE CHANGED DUE TO AN ALTERED DISTRIBUTION OF TIDAL CURRENTS, ALTHOUGH FLUSHING TIME WAS NOT APPRECIABLY ALTERED. VALUES OF CERTAIN PARTICULATE AND DISSOLVED NUTRIENTS CHANGED AFTER DREDGING, BUT NO CORRELATION WAS OBSERVED BETWEEN ANIMAL POPULATIONS AND FLUCUATIONS IN NUTRIENTS. PRODUCTIVITY OF GOOSE CREEK WAS CALCULATED AT 89.87 G/M2/YR BEFORE DREDGING AND 31.18G/M2/YR AFTER DREDGING. PRODUCTIVITY FIGURES FOR THE MIXED PERIPHERAL MARSH WERE CALCULATED AND THE ANNUAL LOSS DUE TO REPLACEMENT OF 10.87 HA OF MARSH BY SPOIL AREAS WAS ESTIMATED AT 49,487 KG. ALTERED LAND USAGE PATTERNS TENDED TO FIX THIS LOSS ON A PERMANENT BASIS. (MODIFIED AUTHOR ABSTRACT)

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: DREDGE/FILL, CR 7, BENTHOS, PRODUCTIVITY, PLANKTON, SEDIMENTATION

****
REF. NO.-0453

KAY, A.R. LEWIS, R.B. 1970.

PASSAGE OF ANADROMOUS FISH THROUGH HIGHWAY DRAINAGE STRUCTURES.

STATE OF CALIF. DEPT. PUB. WORKS, DIV. HIGHWAYS, DIST. 01, HYDRAULICS SEC., RES. REPT. 629110. 15 PP.

HIGHWAY DRAINAGE STRUCTURES CAN BE AN IMPASSABLE BARRIER TO THE MIGRATION OF ANADROMOUS FISH AND THEREBY DAMAGE THE FISHERIES RESOURCE OF AN AREA. INVESTIGATION OF 40 EXISTING DRAINAGE STRUCTURES INDICATES THAT THESE STRUCTURES CAN BE DESIGNED SO AS NOT TO BE A BLOCK TO MIGRATING FISH. A DESIGN PROCEDURE IS PRESENTED WHICH ENABLES THE ENGINEER TO DETERMINE IF A GIVEN STRUCTURE REQUIRES SPECIAL CONSIDERATION FOR FISH PASSAGE. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: BIO

REF. NO.-0453 (CONTINUED)

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

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REF. NO.-0175

KEITH, J.M. SKJEI, R.E. 1974.

ENGINEERING AND ECOLOGICAL EVALUATION OF ARTIFICIAL-ISLAND DESIGN, RINCON ISLAND, PUNTA GORDA, CALIFORNIA.

U.S. ARMY CORPS OF ENGINEERS. CERC TECH. MEMO NO. 43. 76 PP.

RINCON ISLAND, PUNTA GORDA, CALIF. IS AN OFFSHORE ISLAND MAN-MADE IN 1958. IT WAS THE FIRST SUCH ISLAND TO BE BUILT WITH AN OCEAN EXPOSURE. THE ISLAND, LOCATED IN A DEPTH OF ABOUT 45 FEET, IS COMPOSED OF ARMOR ROCK AND TETRAPOD REVETMENTS ENCLOSING A SAND CORE. A PILE-SUPPORTED CAUSEWAY ABOUT 2,700 FEET LONG CONNECTS THE ISLAND TO THE SHORE. MAJOR FINDINGS OF AN EVALUATION OF THE ISLANDS PERFORMANCE IN THE MORE THAN 14 YEARS OF ITS EXISTENCE SHOW: THAT THE REVETMENT HAS NOT BEEN DAMAGED BY WAVE ATTACK; THAT SUBSIDENCE RANGING FROM ABOUT 3 INCHES TO 1.5 FEET HAS OCCURED, MAINLY DUE TO THE DETERIOATION OF SOME INFERIOR MATERIAL IN THE REVETMENT; THAT LITTORAL TRANSPORT HAS BEEN ALMOST UNAFFECTED; THAT ADJACENT BOTTOM TOPOGRAPHY SHOWS MINOR CHANGES; AND THAT A LARGE, THRIVING COMMUNITY OF MARINE ORGANISMS HAS DEVELOPED IN THE ENVIRONMENT CREATED BY THE ISLAND. THE REPORT INCLUDES RECOMMENDATIONS FOR INSTRUMENTATION TO PROVIDE MEASUREMENT OF WAVES AND NEARBY BOTTOM SEDIMENTATION. (NTIS ABSTRACT)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: REVETMENT, CAUSEWAY, SEDIMENTATION, CR 2, SUPPORT

****
REF. NO.-0174

KETCHUM, B.H. 1972.

THE WATER'S EDGE: CRITICAL PROBLEMS OF THE COASTAL ZONE.

MIT PRESS, CAMBRIDGE, MASS. 393 PP.

THE COASTAL ZONE WORKSHOP HELD MAY 22-JUNE 3, 1972 IN WOODS HOLE, MASSACHUSETTS REVIEWED CURRENT PROBLEMS IN COASTAL ZONE MANAGEMENT. TOPICS COVERED INCLUDED EXISTING RESOURCES, COASTAL ECOLOGY, COMMERCIAL AND SPORT FISHERIES, TRANSPORTATION AND COASTAL MODIFICATION, SHIPPING AND COMMERCE, MANAGEMENT, AND RESEARCH NEEDS.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERFNCE: PUB

DESCRIPTORS: GROIN, JETTY, BREAKWATER, BULKHEAD, CAUSEWAY, EROSION, HARBOR

****
REF. NO.-0060

KIESLICH, J.M. MASON, C. 1975.

CHANNEL ENTRANCE RESPONSE TO JETTY CONSTRUCTION.

U.S. ARMY CORPS OF ENGINEERS. CERC REPRINT NO. 76-4. 18 PP.

THIS STUDY DOCUMENTS A GENERAL TREND IN RESPONSE OF U.S. TIDAL INLETS TO CONSTRUCTION OF SINGLE JETTIES, AND AIDS IN IMPROVING RATIONAL DESIGN OF INLETS AND INLET STRUCTURES. PRELIMINARY RESULTS OF AN INLET STUDY IS PRESENTED, INCLUDING A SUMMARY OF THE HISTORY OF SEVERAL IMPROVED INLETS AND QUALITATIVE EXPLANATIONS FOR THEIR OBSERVED BEHAVIOR. IT WAS FOUND THAT REGARDLESS OF THE JETTY LOCATION RELATIVE TO THE DIRECTION OF NET LONGSHORE DRIFT OF INLET/BAY ORIENTATION, JETTY CONSTRUCTION RESULTED IN MIGRATION OF THE SEAWARD PORTION OF THE THALWEG TOWARDS THE JETTY. GENERALLY CONCLUDED THAT ALTHOUGH MIGRATION OF A CHANNEL MIGHT BE THE RESULT OF HYDRAULIC PROCESSES, OBSERVATIONS INDICATE THAT WAVE PROCESSES PREDOMINATE: TRANSPORT OF LITTORAL MATERIAL TO THE INLET ALONG ADJACENT BEACHES, TRANSPORT ACROSS THE EBB TIDAL DELTA AND DEPOSITION IN THE CHANNEL, AND SEDIMENT TRAPPING BY WAVE REFRACTION. ADDITIONAL WORK TO QUANTIFY THE CONTROLLING WAVE AND HYDRAULIC PROCESSES IS BEING PERFORMED AND WILL BE INCLUDED IN A FUTURE REPORT.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: JETTY, STABILIZE, CR 1, CR 5

****
REF. NO.-0218

KING, C.A.M. 1972.

BEACHES AND COASTS.

2ND ED. ST. MARTIN'S PRESS, NEW YORK. PP. 474-481.

BEACHES PLAY AN IMPORTANT ROLE IN DETERMINING AREAS SUBJECT TO EROSION. EROSION IS GENERALLY SLOW ON ROCKY BEACHES AND HIGHEST ON UNCONSOLIDATED BEACHES. THE BEST MEANS OF COASTAL DEFENCE IS A WIDE, HIGH STABLE BEACH. LOW COASTLINES ARE BEST DEFENDED BY VEGETATED SAND DUNES. PROBLEMS ARISING FROM THE CONSTRUCTION OF SEA WALLS ALONG COASTLINES INCLUDE INCREASED DESTRUCTION FROM STORMS DUE TO STRUCTURE IMPERMEABILITY, BLOCKING OF WIND DRIVEN SAND FROM THE FORESHORE TO THE DUNES, AND A REDUCTION OF BEACH HEIGHT IN FRONT OF THE WALL. GROINS, BREAKWATERS AND OTHER STRUCTURES MAY HELP TO HOLD MATERIAL MOVING ALONGSHORE BUT THE DOWN-DRIFT AREAS ARE STARVED OF BEACH MATERIAL. SURVEYS OF NUMEROUS AREAS OF THE UNITED STATES COASTLINE INDICATE THAT LARGE VOLUMES OF BEACH FILL ARE NEEDED FOR BEACH REPLINISHMENT IN MANY AREAS. ONE POSSIBLE SOURCE OF FILL MATERIAL IS MATERIAL DREDGED FROM OFFSHORE.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: BULKHEAD, LITTORAL PROCESSES, EROSION, GROIN

****
REF. NO.-0412

KLIMM, L.E.   1956.

MAN'S PORTS AND CHANNELS.

PP. 522-541 IN: W.L. THOMAS, ED. MAN'S ROLE IN CHANGING THE FACE OF THE EARTH. UNIVERSITY OF CHICAGO PRESS, CHICAGO.

A HISTORY OF THE DEVELOPMENT OF PORTS, HARBORS AND CANALS SHOWS THAT MAN'S CONSTRUCTION ACTIVITIES IN THE COASTAL ZONE EXTENDS BACK INTO PREHISTORY. BREAKWATERS IN EGYPT AND SYRIA DATE BACK AT LEAST 4,000 YEARS AND CANALS ARE AT LEAST AS ANCIENT. PORTS AND HARBORS ARE CONSIDERED TO BE ALMOST UNIVERSALLY BENEFICIAL AND IT IS SELDOM POSSIBLE FOR THEIR EFFECTS TO BE HARMFUL. HOWEVER, THEIR CONSTRUCTION HAS BEEN KNOWN TO UNLEASH FORCES THAT MAN CANNOT COMPLETELY CONTROL.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0115

KNUTSON, P.L.   1976.

DEVELOPMENT OF INTERTIDAL MARSHLANDS UPON DREDGED MATERIAL IN SAN FRANCISCO BAY.

PROC. 7TH WORLD DREDGING CONFERENCE. PP. 103-118.

A MARSH DEVELOPMENT STUDY PROGRAM WAS CONDUCTED BY THE SAN FRANCISCO DISTRICT CORPS OF ENGINEERS AS PART OF THE SAN FRANCISCO BAY AND ESTUARY DREDGE DISPOSAL STUDY. THE MARSH DEVELOPMENT STUDY WAS INITIATED IN AUGUST 1973, TO FORMULATE WORKABLE PROCEDURES FOR THE ARTIFICIAL PROPAGATION OF INTERTIDAL MARSHLAND PLANTS UPON A DREDGE MATERIAL SUBSTRATE. ON THE INTERTIDAL MARGINS OF SAN FRANCISCO BAY ARE TWO DOMINANT MARSHLAND PLANTS: CALIFORNIA CORDGRASS (SPARTINA FOLIOSA) AND PICKLEWEED CONSISTING OF SEVERAL REPRESENTATIVES OF THE GENUS SALICORNIA. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0221

KNUTSON, P.L.   1977.

SUMMARY OF CERC RESEARCH ON USES OF VEGETATION FOR EROSION CONTROL.

GREAT LAKES VEGETATION WORKSHOP PROCEEDINGS. GREAT LAKES BASIN COMMISSION, ANN ARBOR, MI. PP 31-37.

THIS PAPER SUMMARIZES THE U.S. ARMY COASTAL ENGINEERING RESEARCH CENTER'S INVESTIGATIONS OF THE USES OF VEGETATION FOR EROSION CONTROL. THE APPLICATION OF THIS RESEARCH TO THE GREAT LAKES COASTLINE ALSO IS DISCUSSED. RESEARCH HAS INCLUDED INVESTIGATIONS INTO THE USEFULNESS OF VEGETATION FOR DUNE STABILIZATION AND FORMATION, BANK STABILIZATION, AND IN COMBINATION WITH COASTAL STRUCTURES. RESEARCH HAS DEMONSTRATED THAT BEACH GRASSES EFFECTIVELY BUILD AND STABILIZE COASTAL DUNES. BANK EROSION CONTROL WITH VEGETATION AND VEGETATIVE STABILIZATION IN COMBINATION WITH STRUCTURES HAVE PROVEN TO BE EFFECTIVE AND INEXPENSIVE IN AREAS SUBJECT TO LOW AND MODERATE WAVE ENERGIES. THE USE OF VEGETATION FOR DUNE STABILIZATION, BANK EROSION CONTROL, AND IN CONJUNCTION WITH REVETMENTS IN THE GREAT LAKES REGION POTENTIALLY MAY BE USEFUL; HOWEVER, NO RESEARCH HAS BEEN DONE TO DETERMINE USEFUL SPECIES AND EFFECTIVE PLANTING TECHNIQUES.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: STABILIZE, LAND PLANTS, EROSION, CR 8, PROTECT

****
REF. NO.-0296

KOISCH, F.P. 1969.

A HALF CENTURY OF COASTAL CONSERVATION.

SHORE AND BEACH 37(1):47-48,54.

A BRIEF HISTORY OF COASTAL PROGRAMS IN THE UNITED STATES IS PRESENTED, INCLUDING THE DEVELOPMENT OF STATE AND FEDERAL STUDIES, AGENCIES, AND PROJECTS THROUGH THE LAST HALF CENTURY.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0033

KOMAR, P.D. LIZARRAGA-ARCINIEGA, J. R. TERICH, T.A. 1976.

OREGON COAST SHORELINE CHANGES DUE TO JETTIES.

J. WATERWAYS AND HARBORS DIV. ASCE 102 (WW1): 13-30.

HISTORICAL CHANGES IN SHORELINES ALONG THE OREGON COAST WHICH RESULTED FROM THE CONSTRUCTION OF JETTIES AT RIVER OR BAY MOUTHS ARE ILLUSTRATED. SINCE THIS IS AN AREA OF ZERO NET LITTORAL SAND DRIFT, IT WAS PREVIOUSLY BELIEVED THAT EROSION PROBLEMS SHOULD NOT OCCUR. HOWEVER, EROSION HAD INDEED OCCURRED AND THIS STUDY EXAMINED ITS CAUSES AND DEVELOPED COMPUTER MODELS

REF. NO.-0033 (CONTINUED)

WHICH CLOSELY APPROXIMATED ACTUAL EROSION AND ACCRETION PATTERNS. WITH A ZERO NET SAND DRIFT, THE SHORELINE REACHES A NEW EQUILIBRIUM WITH THE WAVES WITHIN A FEW YEARS, RATHER THAN UNDERGOING CONTINUOUS CHANGES.

NATURE OF REFFRENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: JETTY, EROSION, LITTORAL PROCESSES, CR I, STABILIZE

****
REF. NO.-0169

KOWALSKI, T. ROSS, N. 1975.

HOW TO BUILD A FLOATING SCRAP TIRE BREAKWATER.

UNIVERSITY OF RHODE ISLAND MARINE BULLETIN NO. 21. 15 PP.

THIS REPORT EXPLAINS HOW SCRAP TIRES CAN BE USED BY MARINAS TO CONSTRUCT BREAKWATERS AT THE COST PER LINEAR FOOT RANGING FROM $4 TO $30. TESTS PERFORMED ON A PROTOTYPE SHOWED THAT IT COULD REDUCE BY 75 PERCENT THE WAVE HEIGHTS OF 3- TO 4- FOOT WAVES, AND BY UP TO 100 PERCENT THE HEIGHT OF 1/2-FOOT WAVES. BESIDES LOW COSTS, THESE BREAKWATERS PRESENT OTHER ADVANTAGES. THEY CAN BE USED WHERE SURFACE TO BOTTOM BREAKWATERS ARE NOT FEASIBLE; THEY ARE MOVABLE, AND THEY UTILIZE A RESOURCE WHICH IS READILY AVAILABLE AT VERY LOW COST. (NTIS ABSTRACT)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: BREAKWATER, HARBOR, ECONOMICS, HABITAT, PROTECT

****
REF. NO.-0485

KOWALSKI, T. 1974B.

SCRAP TIRE FLOATING BREAKWATERS.

PP. 223-246 IN PROC. FLOATING BREAKWATERS CONFERENCE, NEWPORT RI. TECH. SER. NO. 24. (Q.V. KOWALSKI, 1974A).

TESTS INDICATE THAT EVEN A SIMPLE THREE-TIRE-DEEP MAT HAS A WAVE SUPPRESSION EFFICIENCY OF APPROXIMATELY 70% IN WAVES OF SIGNIFICANT HEIGHT OF 2.5 FT. PROBLEMS WERE ENCOUNTERED WITH THE STRAPPING MATERIALS USED WHICH PROVED INADEQUATE WHEN SUBJECTED TO CONTINUOUS TWISTING ACTION. BETTER PROTECTION IS ALSO NEEDED FOR THE FOAM USED FOR BUOYANCY. RECOMMENDATIONS ARE GIVEN FOR THE IMPROVED METHODS OF CONSTRUCTION, FOAMING OF TIRES FOR BUOYANCY AND THE MATERIALS USED FOR TYING THE TIRES TOGETHER. SUGGESTIONS ARE PRESENTED FOR THE IMPROVEMENTOF THE EFFICIENCY OF WAVE ATTENUATION BY CONSIDERING THE DETAILS OF THE CONFIGURATION OF THE LEADING EDGE, MAIN BODY AND THE TRAILING EDGE OF THE BREAKWATER. (NTIS MODIFIED AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

REF. NO.-0485 (CONTINUED)

TYPE OF REFERENCE: PUB

DESCRIPTORS: BREAKWATER, PROTECT

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REF. NO.-0498

KOWALSKI, T. 1974A.

PROCEEDINGS OF FLOATING BREAKWATERS CONFERENCE HELD AT NEWPORT, RI, 23-25 APRIL, 1974.

TECH. SER. NO. 24. 322 PP.

A COLLECTION OF THE 18 PAPERS PRESENTED AT THE FLOATING BREAKWATER CONFERENCE HELD IN NEWPORT RHODE ISLAND, APRIL 23-25, 1974 IS PRESENTED. TITLES INCLUDED ARE: FLOATING BREAKWATERS--STATE OF THE ART; THEORETICAL ANALYSIS OF FLOATING BREAKWATER PERFORMANCE; THE EFFECT OF SURGE, HEAVE AND PITCH ON THE PERFORMANCE OF A FLOATING BREAKWATER; TETHERED FLOAT BREAKWATERS; THE PERFORMANCE OF AN OFFSET BREAKWATER CONFIGURATION IN WIND-GENERATED WAVES; A WAVE BARRIER CONCEPT; DEVELOPMENT OF HERMAPHRODITE BREAKWATER UNITS UTILIZING HYDROFOILS IN SPECIFIC ARRANGEMENT; ATTENUATION OF WIND-GENERATED DEEP WATER WAVES BY PNEUMATIC AND HYDRAULIC BREAKWATERS; PROTOTYPE PERFORMANCE CHARACTERISTIC OF A FLOATING BREAKWATER; THE 'SEABREAKER' FLOATING BREAKWATER; GOODYEAR SCRAP TIRE FLOATING BREAKWATER CONCEPTS; THE HARRIS FLOATING BREAKWATER; SCRAP TIRE FLOATING BREAKWATERS; MATERIALS AND CONSTRUCTION TECHNIQUES FOR FLOATING BREAKWATERS; PRACTICAL APPLICATIONS OF FLOATING BREAKWATERS FOR SMALL CRAFT HARBORS; WORKSHOP I: FUTURE USES OF FLOATING BREAKWATERS; WORKSHOP II: FLOATING BREAKWATERS FOR SMALL BOAT MARINAS; AND A CHRONOLOGICAL SURVEY OF THE LITERATURE ON TRANSPORTABLE AND FLOATING BREAKWATERS. (NTIS ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: BREAKWATER, PROTECT, HARBOR

****
REF. NO.-0229

KUENZLER, E.J. CHESTNUT, A.F. WEISS, C.M. 1973.

OPTIMAL ECOLOGICAL DESIGNS FOR ESTUARINE SYSTEMS.

PROJECT SUMMARY; SEA GRANT PUBL. NCU-Z-72-079. 4 PP.

THIS PAPER SUMMARIZES A STUDY TO EXAMINE THE EFFECTS OF SEWAGE EFFLUENT UPON BRACKISH WATER ECOSYSTEMS. SUBJECTS STUDIED INCLUDED WATER CHEMISTRY PLANT, ANIMAL AND BACTERIAL POPULATIONS, PRODUCTIVITY, NUTRIENT CYCLING AND POTENTIAL FOR AQUACULTURE. STUDY SITES INCLUDED ARTIFICIAL PONDS, NATURAL ESTUARIES AND SALT MARSHES. A NUMBER OF PAPERS, REPORTS, THESES AND DISSERTATIONS RESULTED, AND ARE LISTED IN THE PROJECT SUMMARY.

NATURE OF REFFRENCE: GENERAL

REF. NO.-0229 (CONTINUED)

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0446

LEEDY, D.L. 1975.

HIGHWAY-WILDLIFE RELATIONSHIPS. VOL. 1: A STATE-OF-THE-ART REVIEW; VOL.2: ANNOTATED BIBLIOGRAPHY.

FED. HIGHWAY ADMIN. DEPT. TRANSPORT. REP. NO. FHWA-RD-76-4. 620 PP.

THIS STUDY ASSESSES, PRIMARILY THROUGH AN EXTENSIVE LITERATURE REVIEW, WHAT IS KNOWN ABOUT HIGHWAY-WILDLIFE RELATIONSHIPS AND SUGGESTS RESEARCH AND MANAGEMENT APPROACHES TO PROTECT AND ENHANCE FISH, WILDLIFE, AND ENVIRONMENTAL QUALITY. A COOPERATIVE EFFORT TO THIS END AMOUNG NATURAL RESOURCE AND HIGHWAY AGENCY PERSONNEL IS NEEDED ON A CONTINUING BASIS FROM THE INITIAL PLANNING STAGES FOR NEW HIGHWAY CONSTRUCTION THROUGH OPERATION AND MAINTENANCE. THE 10 MILLION OR MORE ACRES IN HIGHWAY RIGHTS-OF-WAY HAVE BEEN LARGELY NEGLECTED AS WILDLIFE HABITAT. OPPORTUNITIES EXIST FOR CREATING VALUABLE FISH AND WILDLIFE IMPOUNDMENTS DURING CONSTRUCTION, YET THE MINIMAL EFFORT NEEDED TO LOCATE AND DESIGN SUCH IMPOUNDMENTS HAS GENERALLY NOT BEEN MADE. THE NATION'S FOUR MILLION MILES OF STREETS AND HIGHWAY OFTEN CREATE 'EDGES' CONDUCIVE TO WILDLIFE. MANY MILLIONS OF WILD VERTEBRATES ARE KILLED ANNUALLY, BUT APPARENTLY MOST WILDLIFE POPULATIONS ARE NOT SERIOUSLY AFFECTED BY SUCH LOSSES. HIGHWAY CONSTRUCTION THROUGH LIMITED RANGES OF ENDANGERED SPECIES CAN BE A SERIOUS PROBLEM, AS CAN EROSION, WETLAND DRAINAGE, STREAM ALTERATION, STRUCTURES WHICH BLOCK THE PASSAGE OF ANADROMOUS FISH, AND POLLUTANTS RESULTING FROM HIGHWAY MAINTENANCE AND USE. BETTER MEASURES FOR MITIGATING HABITAT LOSSES, PREDICTING EFFECTS OF HIGHWAYS ON FISH AND WILDLIFE, REDUCING ANIMAL-VEHICLE ACCIDENTS, AND ENHANCING HIGHWAY ENVIRONMENT FOR FISH, WILDLIFE, AND PEOPLE ARE SORELY NEEDED.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0062

LEE, C.E. 1961.

GROINS ON THE SHORES OF THE GREAT LAKES.

J. WATERWAYS AND HARBORS DIVISION. PROC. AMER. SOC. CIVIL ENGRS. 87:89-111.

GROINS ARE IMPORTANT STRUCTURES IN THE PROTECTION AND IMPROVEMENT OF THE SHORE. HOWEVER, THEY ARE NOT A CURE-ALL FOR SHORE EROSION PROBLEMS, AS FAULTY DESIGN OR MISPLACEMENT OF A GROIN CAN CREATE ADDITIONAL PROBLEMS OR INCREASE EXISTING PROBLEMS. HEREIN IS INCLUDED A SUMMARY OF FACTUAL DATA ON EXISTING GROINS, OF CHANGES IN LAKE LEVELS, AND OTHER PROCESSES (THE UNDERSTANDING OF WHICH IS REQUISITE TO DESIGN), NOTES ON DESIGN OF GROINS FOR THE GREAT LAKES, AND SOME INDICATION OF RESEARCH AND COSTS. (AUTHOR ABSTRACT)

REF. NO.-0062 (CONTINUED)

NATURE OF REFFRENCE: ENG

TYPE OF REFERENCE: PUR

DESCRIPTORS: GROIN, CR 8, LITTORAL PROCESSES, PROTECT, STABILIZE

****
REF. NO.-0127

LEE, C.E. 1964.

ON THE DESIGN OF SMALL CRAFT HARBORS.

PROC. 4TH CONF. ON COASTAL ENG. LISBON, PORTUGAL PP. 713-725.

UPON THE DEVELOPMENT OF THE LARGER SMALL CRAFT HARBORS, MANY UNANTICIPATED PROBLEMS AROSE. THE NEED FOR A NEW PHASE OF COASTAL ENGINEERING, IN WHICH THERE IS SPECIALIZATION OF RESEARCH, DEVELOPMENT, AND DESIGN IS DISCUSSED. MARINA DEL REY, REDONDO BEACH, AND HALF MOON BAY, CALIFORNIA PROVIDE THREE EXAMPLES OF PROBLEMS AND THE MEASURES TAKEN TO RESOLVE THEM. THE NEED FOR FUTURE RESEARCH IS ALSO DISCUSSED.

NATURE OF REFFRENCE: ENG

TYPE OF REFERFNCE: PUR

DESCRIPTORS: HARBOR, CR 2, CR 1

****
REF. NO.-0360

LEOPOLD, L.B. CLARKE, F.E. HANSHAW, B.B. BALSLEY, J.R. 1971.

A PROCEDURE FOR EVALUATING ENVIRONMENTAL IMPACT.

U.S.G.S. CIRCULAR NO. 645.

A PROCEDURE IS PRESENTED TO ASSIST IN DEVELOPING UNIFORM ENVIRONMENTAL IMPACT STATEMENTS. THE HEART OF THE SYSTEM IS A MATRIX WHICH IS GENERAL ENOUGH TO BE USED AS A REFERENCE CHECKLIST OR AS AN ABSTRACT OF THE TEXT OF THE ENVIRONMENTAL ASSESSMENT. THE PROPOSED MANNER OF USING THE MATRIX IS AIMED AT SEPARATING FACTUAL INFORMATION ON MAGNITUDE OF EACH TYPE IMPACT FROM THE MORE SUBJECTIVE EVALUATION OF THE IMPORTANCE OF IMPACT. AN EXAMPLE OF AN IMPACT ASSESSMENT USING MATRIX ANALYSIS IS PRESENTED. (MODIFIED AUTHOR ABSTRACT)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0204

LEUCHNER, P. MARKS, A. 1975.

WILSON TUSCARORA STATE PARK, ENVIRONMENTAL ASSESSMENT WORKSHEET.

ARMY ENGINEER DISTRICT, BUFFALO.

AN ENVIRONMENTAL ASSESSMENT WORKSHEET IS PRESENTED FOR THE CONSTRUCTION OF A BOAT LAUNCHING RAMP, A STEEL SHEET PILE BULKHEAD AND TWO DOCKS, AND DREDGING IN THE NORTHEASTERN TERMINUS OF WILSON TUSCARORA STATE PARK, NY. THIS IS A WORKSHEET AND RESULTS ARE NOT CONCLUSIVE.

NATURE OF REFFRENCE: BIO

TYPE OF REFERENCE: UNPUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0108

LEWIS, T.E. 1973.

COASTAL ZONE MANAGEMENT: THE FLORIDA EXPERIENCE.

SHORE AND BEACH 41(2):12-14.

ENVIRONMENTAL QUALITY ALONG FLORIDA'S COAST IS BECOMING AN INCREASING PROBLEM DUE TO A RAPIDLY INCREASING POPULATION AND DEVELOPMENT OF THE COASTAL ZONE. IN RECOGNITION OF THIS PROBLEM, THE COASTAL COORDINATING COUNCIL WAS ESTABLISHED IN 1970. THE COUNCIL'S FUNCTIONS AND BASIC GUIDELINES ARE DISCUSSED. REGULATORY AGENCIES ARE MOVING BEYOND THE SINGLE PURPOSE APPROACH TO COASTAL ZONE MANAGEMENT.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0527

LINDALL, W.N., JR. 1973.

ALTERATIONS OF ESTUARIES OF SOUTH FLORIDA: A THREAT TO ITS FISH RESOURECES.

MAR. FISH. REVIEW 35(10):26-33.

BASED ON UNPUBLISHED DATA FROM 1966-1970, ABOUT 85 PERCENT OF THE COMMERCIAL FISH AND SHELLFISH CAUGHT IN SOUTH FLORIDA CONSISTS OF ESTUARINE-DEPENDENT SPECIES. THE ANNUAL HARVEST OF THESE SPECIES AVERAGED MORE THAN 36 MILLION POUNDS WORTH IN EXCESS OF $10 MILLION (EX-VESSEL VALUE). DATA ON THE REGION'S SPORT FISHERY ARE LACKING, BUT IT IS ESTIMATED THAT THE MAJORITY OF THE SPECIES TAKEN BY ANGLERS ARE ESTUARINE-DEPENDENT AND RESPONSIBLE FOR ABOUT

REF. NO.-0527 (CONTINUED)

$575 MILLION OF THE STATES ANNUAL TOURIST INDUSTRY. MAN'S ALTERATIONS OF THE ESTUARIES ARE THREATENING THESE FISH RESOURCES. SOME OF THE MAJOR ALTERATIONS, REDUCTION OF FRESHWATER RUNOFF, DOMESTIC AND INDUSTRIAL POLLUTION, PESTICIDE CONTAMINATION, THERMAL ADDITION, AND DREDGING AND FILLING, ARE DISCUSSED. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: CR 3, CR 4, DREDGE/FILL, BULKHEAD

****
REF. NO.-0014

LINDGREN, E.W.   1974.

TREATED PILING SYSTEMS.

PP. 301-317 IN H.T. ODUM, B.J. COPELAND AND E.A., MCMAHAN, EDS. COASTAL ECOLOGICAL SYSTEMS OF THE UNITED STATES. VOL. III. THE CONSERVATION FOUNDATION, WASHINGTON, D.C.

CREOSOTE TREATED WOOD PILINGS ARE SUBJECT TO ATTACK BY SMALL CRUSTACEANS CALLED GRIBBLES (LIMNORIA SPP.). THIS INFESTATION IS OFTEN THE CAUSE OF DETERIORATION OF PILING SYSTEMS. A DISCUSSION OF GRIBBLE DISTRIBUTION, SEASONAL PATTERNS OF POPULATION LEVELS, ACTIVITY IN RELATION TO LIGHT, SALINITY, AND WATER VELOCITY IS ACCOMPANIED BY COMPARISONS OF PILING LIFE SPAN AND RESISTANCE IN VARIOUS AREAS.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: INVERTEBRATES, PILING

****
REF. NO.-0186

LIZARRAGA-ARCINIEGA, J.R. KOMAR, P.D.   1975.

SHORELINE CHANGES DUE TO JETTY CONSTRUCTION ON THE OREGON COAST.

OREGON STATE UNIVERSITY SEA GRANT PUB. NO. ORESU-T-75-004. 96 PP.

PATTERNS OF BEACH EROSION AND ACCRETION DUE TO JETTY CONSTRUCTION ARE EXAMINED FOR THE COAST OF OREGON. ALL JETTY SYSTEMS ARE INCLUDED EXCEPT THOSE ON THE COLUMBIA RIVER. IN GENERAL, ACCRETION OF THE SHORELINE TOOK PLACE ADJACENT TO THE JETTIES FOLLOWING THEIR CONSTRUCTION, BOTH TO THE NORTH AND SOUTH. SAND FOR THE ACCRETION ADJACENT TO THE JETTIES WAS DERIVED FROM BEACH EROSION AT GREATER DISTANCES FROM THE JETTIES. THE SEVERITY OF THE EROSION DEPENDED UPON THE TOTAL AMOUNT OF SAND REQUIRED FOR BEACH ACCRETION TO A NEW EQUILIBRIUM AND THE LENGTH OF BEACH UNDERGOING EROSION. ALL EVIDENCE INDICATES THAT THESE AREAS OF THE OREGON COAST ARE EXPERIENCING A SEASONAL REVERSAL IN SAND DRIFT, BUT WITH A ZERO OR NEAR ZERO DRIFT OVER A SEVERAL YEARS TIME SPAN. (MODIFIED AUTHOR ABSTRACT)

REF. NO.-0186 (CONTINUED)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: JETTY, PROTECT, STABILIZE, LITTORAL PROCESSES, EROSION, CR 1

****
REF. NO.-0537

LONG BEACH CITY PLANNING DEPARTMENT. 1975.

SHORELINE AQUATIC PARK HARBOR.

ENVIRON. IMPACT REP. LONG BEACH, CA. EXCERPTS.

THE PROPOSED PROJECT IS TO PROVIDE TRANSIENT BOAT SLIPS FOR COMMERCIAL USES SUCH AS SIGHTSEEING AND TO PROVIDE THE REMAINING SLIPS TO PRIVATE BOAT OWNERS. THE PROJECT WILL ASSIST IN THE REVITALIZATION OF THE DOWNTOWN AREA BY DEVELOPING AN INTERESTING, ATTRACTIVE, AND FUNCTIONAL USE. A POSITIVE ON-SITE INCREASE IN VEGETATION IS ANTICIPATED FROM THE PROJECT. NO ADVERSE EFFECTS ON TERRESTRIAL AND MARINE ORGANISMS ARE EXPECTED. ENVIRONMENTAL IMPACTS THAT WILL OCCUR ARE PRIMARILY TRAFFIC RELATED.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: EIS

DESCRIPTORS: HARBOR, MOORING, CH 2, SEDIMENTATION

****
REF. NO.-0536

LOS ANGELES COUNTY. 1976.

DRAFT ENVIRONMENTAL IMPACT REPORT: LAS TUNAS BEACH PARK.

COUNTY OF LOS ANGELES, DEPT. COUNTY ENG., CA. EXCERPTS.

THE PROPOSED PROJECT AT LAS TUNAS STATE BEACH WILL PROVIDE PROTECTION TO THE EXISTING PUBLIC BEACH AND PACIFIC COAST HIGHWAY IMMEDIATELY ABOVE THE BEACH WITHIN THE PROJECT LIMITS, ELIMINATE EXISTING SAFETY HAZARDS CREATED BY THE ERODED STEEL SHEET-PILE GROINS ON THE PROJECT SITE, AND PROVIDE ADDITIONAL USABLE PUBLIC BEACH AREA FOR RECREATION. CONSTRUCTION OF TWO RUBBLEMOUND ROCK GROINS AND REMOVAL OF THE OLD STEEL SHEET-PILE GROINS WILL TAKE PLACE. ADVERSE ENVIRONMENTAL EFFECTS INCLUDE DESTRUCTION OF A SMALL AMOUNT OF MARINE LIFE DUE TO CONSTRUCTION.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: EIS

DESCRIPTORS: GROIN, CR 2, RECREATION, PROTECT, EROSION

****
REF. NO.-0439

LOUISIANA ADVISORY COMMISSION ON COASTAL AND MARINE RESOURCES. 1973.

LOUISIANA WETLANDS PROSPECTUS.

STATE PLANNING OFFICE. BATON ROUGE, LA. 346 PP.

THIS REPORT DESCRIBES THE NEEDS AND PROBLEMS LOUISIANA FACES IN THE USE OF ITS COASTAL AND MARINE RESOURCES NOW AND IN THE FUTURE. RECOMMENDATIONS ARE MADE REGARDING WHAT ACTIONS THE STATE GOVERNMENT SHOULD TAKE TO INSURE THE ORDERLY, LONG-RANGE CONSERVATION AND DEVELOPMENT OF LOUISIANA'S COASTAL AND MARINE RESOURCES. AN INVENTORY OF THE COASTAL RESOURCES AND THE APPARENT TRENDS IN THE COASTAL ZONE ARE GIVEN.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0152

MACCAMY, R.C. FUCHS, R.A. 1954.

WAVE FORCES ON PILES: A DIFFRACTION THEORY.

U.S. ARMY CORPS OF ENGINEERS. BEB TECH. MEMO. NO. 69. 17 PP.

THE REPORT CONTAINS TWO PARTS. IN THE FIRST AN EXACT MATHEMATICAL SOLUTION IS PRESENTED FOR LINEARIZED PROBLEM OF WATER WAVES OF SMALL STEEPNESS INCIDENT ON A CIRCULAR CYLINDER. THE SECOND PART IS AN ATTEMPT TO APPLY THE THEORY TO THE COMPUTATION OF ACTUAL WAVE FORCES ON CYLINDRICAL PILES. THE BASIS OF COMPARISON IS A SERIES OF TESTS PERFORMED IN THE WAVE CHANNEL. THE AGREEMENT IS FOUND TO BE QUITE GOOD IN THE REGION IN WHICH THE ASSUMPTIONS OF THE THEORY ARE FAIRLY CLOSELY REALIZED.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0145

MACHEMEHL, J.L. ABAD, G.N. 1973.

SAND-FILLED NYLON BAG GROINS.

MILITARY ENG. 65(425):161-162.

THE BARRIER ISLANDS OF NORTH CAROLINA ARE PLAGUED WITH WIND AND WATER EROSION. THIS ARTICLE DESCRIBES AN EXPERIMENTAL EROSION CONTROL PROJECT USING 15 SAND-FILLED NYLON BAG GROINS. THE

REF. NO.-0145 (CONTINUED)

BAGS WERE PLACED TO STABILIZE 4000 FEET OF BEACH FRONT. THE GROINS FOLLOWED THE NATURAL SLOPE OF THE BEACH, WITH THE SHOREWARD ENDS SLOPED FROM 4.5 FEET ABOVE HIGH TIDE TO 2 FEET ABOVE LOW TIDE AT THE SEAWARD END. BEACH PROFILES WERE TAKEN AT 2 GROINS. THERE WAS SIGNIFICANT ACCRETION OF MATERIAL ON BOTH SIDES OF ONE GROIN. SIGNIFICANT ACCRETION OF MATERIAL WAS OBSERVED ON THE EAST SIDE OF THE OTHER GROIN WITH MINOR EROSION ON ITS LEE SIDE. WHEN DREDGE SPOILS WERE DEPOSITED ON THE WEST SIDE OF THIS GROIN IT PROVED BENEFICIAL IN STABILIZING THE SPOIL.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: GROIN, STABILIZE, ECONOMICS, CR 5

****
REF. NO.-0232

MACHEMEHL, J.L. BUMGARNER, J.C. 1974.

A MINI-PROJECT FOR AVON HARBOR, NORTH CAROLINA.

SHORE AND BEACH 42(1):3-10.

DESCRIPTION OF A PROJECT SPONSORED BY THE DADE COUNTY BOARD OF COMMISSIONERS, TO RESTORE AVON HARBOR, WHICH HAD ERODED TO SUCH AN EXTENT THAT THE ENTRANCE HAD WIDENED TO ALMOST THE WIDTH OF THE HARBOR AN EXPERIMENTAL JETTY SYSTEM (2 NYLON BAG JETTIES) WAS DESIGNED TO REDUCE WAVE ACTION IN THE HARBOR AND TO PREVENT FURTHER ENTRANCE WIDENING. AN EXPERIMENTAL GROIN FIELD (2 NYLON BAG GROINS NORTH OF THE ENTRANCE; 3 TIMBER GROINS SOUTH OF THE ENTRANCE) WAS DESIGNED TO REDUCE SOUND SIDE EROSION. NO CONCLUSIONS WERE DISCUSSED.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0302

MACK, W.N. D'ITRI, F.M. 1971.

POLLUTION OF A MARINA AREA BY WATERCRAFT USE AS INDICATED BY COLIFORM AND CHEMICAL CONCENTRATIONS.

MICHIGAN STATE UNIVERSITY, EAST LANSING. PROJECT COMPLETION REPORT. 25 PP.

SAMPLES OF WATER FROM A MARINA AREA IN MICHIGAN USED BY WATERCRAFT WERE TESTED FOR THE NUMBER OF COLIFORM ORGANISMS. THERE WAS A SLIGHT INCREASE IN THE COLIFORM MOST PROBABLE NUMBER OF ORGANISMS IN THE SLIPS MOST FREQUENTLY USED BY THE YACHTS. OUTSIDE SOURCES OF CONTAMINATION PROBABLY ADDED TO THE TOTAL NUMBER OF ORGANISMS PRESENT IN THE AREA. ALTHOUGH AN INCREASE IN THE NUMBER OF ORGANISMS WAS RELATED TO THE PRESENCE OF YACHTS IN THE MARINA, THE CONCENTRATION WAS FAR BELOW THE STANDARD OF TOTAL BODY CONTACT AS ESTABLISHED BY THE WATER QUALITY STANDARDS

REF. NO.-0302 (CONTINUED)

FOR MICHIGAN INTRASTATE WATERS. CHEMICAL ANALYSIS OF WATER SAMPLES TAKEN AT THE MARINA WERE ALL WITHIN THE NORMAL LIMITS FOR THE SPECIFIC AREA. OTHER FACTORS CONTRIBUTING TO THE PRESENCE OF THE COLIFORM ORGANISMS IN THIS RELATIVELY UNPOPULATED AREA WERE CONSIDERED. (NTIS ABSTRACT)

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0522

MARKS, W.D. CLINTON, F.A. 1974.

MICHIGAN DEMONSTRATION EROSION CONTROL PROGRAM.

SHORE AND BEACH 42(2):11-7.

THE MICHIGAN DEPARTMENT OF NATURAL RESOURCES CONDUCTED A DEMONSTRATION EROSION CONTROL PROGRAM ON THE GREAT LAKES SHORELINE. DEMONSTRATION EROSION CONTROL PROJECTS WERE SOUGHT WHICH WERE LOW IN COST (LESS THAN $100 PER FOOT OF PROTECTION) AND WHICH A PROPERTY OWNER COULD AT LEAST HELP TO CONSTRUCT. EIGHTEEN PROJECTS WERE UNDERTAKEN AT SPECIALLY SELECTED SITES. SITE SELECTION CRITERIA INCLUDED: PUBLIC OWNERSHIP OF PROPERTY, AN IMPROVEMENT ON THE PROPERTY WHICH WAS IN DANGER OF DESTRUCTION, AND A SITE WITH PROBLEMS REPRESENTATIVE OF THOSE FOUND ELSEWHERE ON THE LAKES. THE MORE INNOVATIVE PROJECTS ARE DESCRIBED, AND IN SOME CASES PRELIMINARY EVALUATIONS AS TO THEIR SUCCESS ARE GIVEN.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: GROIN, CR 8, REVETMENT, BREAKWATER, PROTECT, ECONOMICS

****
REF. NO.-0189

MARSHALL, A.R. 1968.

DREDGING AND FILLING.

PP. 107-113 IN: J.D. NEWSOM (ED). PROC. OF THE MARSH AND ESTUARY MANAGEMENT SYMPOSIUM. BATON ROUGE, LA.

DIRECT AND INDIRECT EFFECTS OF DREDGING AND FILLING ON THE FISH AND WILDLIFE RESOURCES OF FLORIDA'S ESTUARINE AND FRESHWATER HABITATS ARE DISCUSSED. ASPECTS OF THE PROBLEM DISCUSSED INCLUDE: DIRECT DESTRUCTION OF SWAMP MARSH AND BAY BOTTOM HABITAT IN THE IMMEDIATE PROJECT AREA; DESTRUCTION OF SPAWNING AND NURSERY HABITAT BY SILTATION; REDUCTION OF LIGHT PENETRATION; CREATION OF ANEROBIC BOTTOM CONDITIONS; REDUCTION OF NUTRIENT OUTFLOW FROM MARSHES AND SWAMPS. SPECIFIC EXAMPLES OF DREDGING AND FILLING AT BOCA CIEGA BAY, TAMPA BAY, BISCAYNE BAY, INDIAN RIVER AND THE SAINT JOHNS RIVER ILLUSTRATE THE IMPACTS OF THESE

REF. NO.-0189 (CONTINUED)

OPERATIONS ON FLORIDA'S FISH AND WILDLIFE RESOURCES.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: DREDGE/FILL, SEDIMENTATION

****
REF. NO.-0288

MARSHALL, H.E. 1976.

EFFICIENCY IMPACTS OF COST SHARING ON SHORELINE MANAGEMENT.

COASTAL ZONE MANAGEMENT JOURNAL. 2(4):369-382.

THE NATION'S SHORELINES ARE BEING ERODED BY HIGH WINDS AND WAVES. NONFEDERAL INTERESTS HAVE TRADITIONALLY RECEIVED FEDERAL HELP IN THE FORM OF COST-SHARING FOR PROTECTIVE STRUCTURES. THIS ARTICLE DESCRIBES, COMPARES, AND EVALUATES EXISTING AND ALTERNATIVE COST-SHARING RULES FOR SHORELINE PROTECTION ON THE BASIS OF ECONOMIC EFFICIENCY. BOTH ENGINEERING AND MANAGEMENT TECHNIQUES ARE EXAMINED FOR BEACH EROSION, HURRICANE, AND EMERGENCY COASTAL FLOOD PROTECTION. THE PRESENT COST-SHARING SYSTEM APPEARS TO BIAS LOCAL INTERESTS TO CHOOSE (1) COSTLY TECHNIQUES OF PROTECTION, E.G. ENGINEERING RATHER THAN MANAGEMENT TECHNIQUES, AND UNDER CERTAIN CONDITIONS (2) PROTECTIVE STRUCTURES OVERBUILT IN TERMS OF THE EFFICIENT SCALE. CONCLUSIONS ARE THAT THESE BIASES COULD BE REDUCED IF ALL ENGINEERING AND MANAGEMENT TECHNIQUES FOR REDUCING SHORELINE DAMAGES WERE SUBJECT TO THE SAME PERCENTAGE COST-SHARING RULES.
(AUTHOR ABSTRACT)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: ECONOMICS, PROTECT, EROSION

****
REF. NO.-0378

MARSHALL, H.L. 1976.

FLORIDA KEYS PROJECT MEETING.

U.S. ENVIRONMENTAL PROTECTION AGENCY. 4 PP.

A LETTER TO THE CHIEF, ECOLOGICAL REVIEW BRANCH, SUMMARIZES A FLORIDA KEYS PROJECT MEETING HELD ON SEPTEMBER 16, 1976. THE PURPOSE OF THE MEETING WAS TO OUTLINE THE STUDY ON THE IMPACT OF RAILWAY ROADBED AND HIGHWAY CONSTRUCTION ON WATER EXCHANGE IN THE BARNES SOUND AND UPPER FLORIDA BAY AREA. THE STUDY WILL BE DIVIDED INTO TWO PARTS, A HYDROLOGICAL STUDY AND A BIOLOGICAL STUDY. THE SCOPE OF THE BIOLOGICAL STUDY WILL BE DETERMINED BY THE RESULTS OF THE HYDROLOGICAL STUDY.

NATURE OF REFERENCE: BIO

REF. NO.-0378 (CONTINUED)

TYPE OF REFERENCE: UNPUB

DESCRIPTORS: CAUSEWAY, CR 4, BRIDGE

****
REF. NO.-0098

MASON, M.A. 1953.

PRINCIPLES OF SHORE PROTECTION FOR THE GREAT LAKES.

PROC. 4TH CONF ON COASTAL ENG. PP. 207-213.

MASON DISCUSSES THE IMPORTANCE OF PROIR KNOWLEDGE OF LOCAL ENVIRONMENTAL CONDITIONS TO THE DESIGN OF PROTECTIVE SHORELINE STRUCTURES. GEOLOGY OF SHORELINE, WAVE ACTION HISTORY, WIND, AND LAKE LEVEL VARIATION ARE FACTORS TO BE CONSIDERED IN EFFECTIVE REVETMENT DESIGN

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: CR 8, REVETMENT, EROSION

****
REF. NO.-0440

MASSACHUSETTS COASTAL ZONE MANAGEMENT PROGRAM. UNDATEDa.

MARINE ENVIRONMENT: SUMMARY OF FINDINGS.

IN COMMONWEALTH OF MASSACHUSETTS, COASTAL HAZARDS AND THE MARINE ENVIRONMENT.

THE VARIOUS MARINE ENVIRONMENTS COMPRISING THE MASSACHUSETTS COASTAL ZONE ARE DISCUSSED IN TERMS OF THEIR ECOLOGICAL SIGNIFICANCE. MAN'S ACTIVITIES AND THEIR EFFECTS UPON THE COASTAL MARINE ENVIRONMENT ARE ALSO PRESENTED. ACTIVITIES CAUSING ENVIRONMENTAL DEGRADATION INCLUDE PHYSICAL ALTERATION, SEWAGE TREATMENT FACILITIES, HAZARDOUS SUBSTANCES, OIL POLLUTION, DREDGING AND DREDGE DISPOSAL, AND OFFSHORE MINING.

NATURE OF REFFRENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: CR 7, BULKHEAD, DREDGE/FILL

****
REF. NO.-0441

MASSACHUSETTS COASTAL ZONE MANAGEMENT PROGRAM. UNDATEDb.

COASTAL HAZARDS: SUMMARY OF FINDINGS.

IN COMMONWEALTH OF MASSACHUSETTS, COASTAL HAZARDS AND THE MARINE ENVIRONMENT.

A BRIEF ASSESSMENT OF DAMAGE CAUSED BY STORMS AND HURRICANES AND SUBSEQUENT EROSION AND FLOODING ALONG THE MASSACHUSETTS COAST IS MADE. THE PAPER SUGGESTS THAT MANAGEMENT OF HAZARDOUS AREAS IN THE COASTAL ZONE SHOULD BE DESIGNED TO REDUCE CURRENT LOSSES OF PROPERTY AND LIVES, TO PRESERVE AND RESTORE COASTAL LANDFORMS AND NATURAL PROCESSES WHICH ARE ESSENTIAL TO THE PROTECTION OF COASTAL ENVIRONMENTS, AND TO MAXIMIZE THE EFFECTIVENESS AND REDUCE THE COSTS OF PUBLIC INVESTMENT IN HAZARD PRONE AREAS.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: CR 7, EROSION, BULKHEAD

****
REF. NO.-0216

MASSEY, L.L. JOHNSTON, J.B. PAULSON, O.L., JR. PESSONEY, G.F. 1976.

BIBLIOGRAPHY OF COASTAL RESIDENTIAL CANALS WITH SELECTED ANNOTATIONS.

MISSISSIPPI-ALABAMA SEA GRANT CONSORTIUM SEA GRANT PUBL. MASGP-76-003 31 PP.

BIBLIOGRAPHIC REFERENCES ARE PRESENTED RELATING EITHER TO COASTAL RESIDENTIAL CANALS DIRECTLY, OR INDIRECTLY ADDRESSING ECOLOGICAL AND GEOLOGICAL TOPICS CONTRIBUTING TO THE UNDERSTANDING OF INTERRELATIONSHIPS POSSIBLY ALTERED BY COASTAL CANALS. THE BIBLIOGRAPHIC SECTION IS FOLLOWED BY SELECTED ANNOTATIONS OF ARTICLES PUBLISHED IN OPEN JOURNALS WHICH REPORT OF ECOLOGICAL INVESTIGATIONS CONDUCTED WITHIN EXISTING CANALS.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: BIBLIOGRAPHY

****
REF. NO.-0444

MCALLISTER, R. 1977.

MINOR SHORELINE STRUCTURES OF SOUTHERN FLORIDA.

PROFESSOR OF OCEAN ENGINEERING (OCEANOGRAPHER) FLORIDA ATLANTIC UNIV. BOCA RATON, FL. PERS. COMM.

A TELEPHONE INTERVIEW WAS CONDUCTED WITH DR. MCALLISTER REGARDING VARIOUS MINOR SHORELINE STRUCTURES. IMPACTS OF REVETMENTS, BULKHEADS, GROINS, JETTIES, BREAKWATERS, RAMPS, AND BRIDGES WERE INCLUDED IN THE CONVERSATION. DR. MCALLISTER DOES NOT BELIEVE THAT MINOR SHORELINE STRUCTURES CAUSE SIGNIFICANT DAMAGE TO THE BIOTA IN SOUTHERN FLORIDA, DUE TO RECRUITMENT. PROBLEMS MAY OCCUR WHEN A SAND BOTTOM IS ALTERED TO BECOME GRAVEL.

NATURE OF REFERENCE: ENG

REF. NO.-0444 (CONTINUED)

TYPE OF REFERENCE: INT

DESCRIPTORS: REVETMENT, GROIN, BULKHEAD, BREAKWATER, BRIDGE, RAMP, JETTY, CR 4

****
REF. NO.-0096

MCCABE, R.A. 1970.

BEACH BEHAVIOR, NORTH SHORE, LONG ISLAND SOUND.

AM. SOC. CIV. ENG. WATERWAYS AND HARBORS DIV. JOUR. 96 (WW4): 78-794.

ABOUT 20 MILES OF ARTIFICIAL BEACHES HAVE BEEN CREATED ALONG THE NORTH SHORE OF LONG ISLAND SOUND DURING THE PAST 30 YEARS. SUBSEQUENTLY, NATURAL WAVE ACTION HAS PRODUCED RATHER CONSISTANT PATTERNS OF BEACH BEHAVIOR. THE SUCCESS OF PLANNED DEVELOPMENT OF SHOREFRONT PROPERTY CAN BE AIDED BY RECOGNIZING AND ADAPTING TO THESE NATURAL BEHAVIOR PATTERNS. BETWEEN 1949 AND 1947, TEN REPORTS EVALUATED EROSION CONDITIONS ALONG THE ENTIRE STATE SHORELINE AND DEVELOPED GENERAL DESIGN REQUIREMENTS FOR RECOMENDED PROJECTS. SURVEYS INCLUDED MEAN-HIGH-WATER CONTOUR ALONG THE PROJECT AREA AND ADJACENT SHOREFRONT, REPRESENTATIVE PROFILES OF GROINS AND ALONG OPEN BEACHES AND AERIAL PHOTOS FOR BEACH ALIGNMENT INFORMATION. SAND MOVEMENT, BEACH ORIENTATION AND GROIN EFFECTIVENESS ARE WELL COVERED.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: CR 7, GROIN

****
REF. NO.-0053

MCCARTNEY, B.L. AHRENS, J.P. 1975.

STABILITY OF GOBI BLOCK REVETMENT TO WAVE ATTACK.

U.S. ARMY CORPS OF ENGINEERS, CERC TECH. MEMO. NO. 55. 22 PP.

TESTS OF GOBI BLOCK REVETMENT STABILITY UNDER WAVE ATTACK WERE CONDUCTED AT PROTOTYPE SCALE IN A LARGE WAVE TANK AT THE COASTAL ENGINEERING RESEARCH CENTER. WAVE HEIGHTS RANGING FROM 1.6 TO 3.2 FEET AND WAVE PERIODS FROM 2.8 TO 8.5 SECONDS WERE USED. A 1 ON 3.5 EMBANKMENT SLOPE WAS TESTED. STABILITY OF THE GOBI BLOCK REVETMENT COMPARED FAVORABLY WITH SIMILAR WEIGHT RIPRAP ON THE SAME SLOPE. HOWEVER, A PROTOTYPE GOBI BLOCK INSTALLATION AT HOLLY BEACH, LOUISIANA, EXHIBITED GREATER STABILITY THAN THE WAVE TANK TEST. THIS INCREASED STABILITY IS ATTRIBUTED TO A DRY MORTAR EFFECT OF SAND AND GRAVEL WEDGED BETWEEN THE BLOCKS. (NTIS ABSTRACT)

NATURE OF REFFRENCE: GENERAL

TYPE OF REFERENCE: PUR

DESCRIPTORS: REVETMENT, PROTECT, CR 3

****
REF. NO.-0279

MCCARTNEY, B.L.   1976.

SURVEY OF COASTAL REVETMENT TYPES.

U.S. ARMY OF CORPS OF ENGINEERS.CERC MISC. REP. NO. 76-7. 49 PP.

A REVIEW OF 25 SELECTED REVETMENT TYPES AND A PROCEDURE FOR REVETMENT DESIGN WHICH INCLUDES IDENTIFICATION OF CONTROLLING SITE CONDITIONS, A COMPARATIVE COST ANALYSIS METHOD, AND AN EXAMPLE PROBLEM ARE PRESENTED. DESIGN DATA INCLUDE PROTOTYPE INSTALLATION EXAMPLES, AVAILABLE MODEL TEST RESULTS, AND ESTIMATES OF ZERO-DAMAGE WAVE HEIGHTS, WAVE RUNUP, AND REVETMENT WAVE REFLECTION PROPERTIES.(AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: REVETMENT, PROTECT

****
REF. NO.-0471

MCCARTNEY, B.L.   1975.

SEVENTEEN REVETMENTS FOR SEMI-PROTECTED SHORES.

U.S. ARMY CORPS OF ENGINEERS. CERC REPORT PREPARED FOR THE SHORELINE EROSION ADVISORY PANEL. 36 PP.

DESIGN AND COST ESTIMATES FOR 17 REVETMENTS WHICH COULD BE USED ON SEMI-PROTECTED WATERS AND WHICH ARE WITHIN THE BUDGET OF INDIVIDUAL SHOREFRONT PROPERTY OWNERS ARE PRESENTED. THE REVETMENTS WERE ASSUMED TO BE STABLE FOR A WIND GENERATED DEEP WATER WAVE 6 FEET HIGH WITH A 5.5 SECOND PERIOD. ALL REVETMENTS ARE PLACED ON THE UPPER BEACH WITH THE TOE AT STILL WATER LEVEL. THEREFORE THE DEEP WATER WAVE WILL BREAK OFFSHORE AND REFORM INTO A SMALLER WAVE APPROXIMATELY 3.6 FEET PRIOR TO BREAKING ON THE STRUCTURE. CONSTRUCTION MATERIALS WERE ASSUMED TO BE READILY AVAILABLE, AND INSTALLATION WAS ASSUMED BY THE PROPERTY OWNER EXCEPT FOR THE RIPRAP REVETMENT WHICH REQUIRES A FRONT END LOADER AND HIRED OPERATOR. DESIGN AND COST ESTIMATES ARE INTENDED TO PROVIDE SCOPE FEASIBILITY COMPARATIVE COST ESTIMATES AND MAY VARY CONSIDERABLY BY GEOGRAPHIC LOCATION.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: GOV REP

DESCRIPTORS: REVETMENT, PROTECT, EROSION, ECONOMICS

****
REF. NO.-0419

MCCAULEY, J.E. HANCOCK, D.R. PARR, R.A.   1976.

MAINTENANCE DREDGING AND FOUR POLYCHAETE WORMS.

PP. 673-683 IN PROC. SPEC. CONF. ON DREDGING AND ITS ENVIRONMENTAL EFFECTS. MOBILE, AL.

REF. NO.-0419 (CONTINUED)

THE FATE OF FOUR SPECIES OF POLYCHAETE WORMS ARE FOLLOWED FOR EIGHT WEEKS AFTER MAINTENANCE DREDGING. CAPITELLA CAITATA (FABRICIUS, 1780) SEEMS TO THRIVE BEST IN RECENTLY DEPOSITED SEDIMENTS BUT DOES NOT DO WELL WHERE SEDIMENTS ARE OVERTURNED SEVERAL TIMES WEEKLY. POLYDORA LIGNI (WEBSTER, 1879) THRIVES WHERE SEDIMENTS ARE OVERTURNED FREQUENTLY AND WHERE SAWDUST AND WOOD DEBRIS ABOUND. STREBLOSPIO BENEDICTI (WEBSTER, 1879) AND PSEUDOPOLYDORA KEMPI (SOUTHERN, 191) THRIVE UNDER CONDITIONS WHERE EITHER FREQUENT OVERTURNING OR RECENT SEDIMENTATION OCCUR AND MAY BE DEPENDENT UPON SUSPENDED ORGANIC MATTER IN THE EPIBENTHIC WATER. BOTH SPECIES CAN APPARENTLY LEAVE THEIR SEDIMENT TUBES WHEN DISTURBED, SWIM RAPIDLY, AND REBUILD TUBES QUICKLY. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0550

MCCAULEY, J.E. PARR, R.A. HANCOCK, D.R. 1977.

BENTHIC INFAUNA AND MAINTENANCE DREDGING: A CASE STUDY.

WATER SEARCH 11:233-242.

MONITORING STUDIES OF A SMALL MAINTENANCE DREDGING OPERATION IN COOS BAY, OREGON, SHOWED THAT SIGNIFICANT DECREASES OF BENTHIC INFAUNAL ABUNDANCE IMMEDIATELY AFTER DREDGING EXTENDED AT LEAST 100 M FROM THE SITE OF ACTUAL DREDGING. THE INFAUNA RE-ADJUSTED TO PRE-DREDGING CONDITIONS WITHIN 28 DAYS IN THE DREDGED AREA AND WITHIN 14 DAYS IN THE ADJACENT AREAS. AT THE SPOIL SITE A SIMILAR DECREASE WAS FOLLOWED BY A 2-WEEK RECOVERY PERIOD. THE AUTHORS SUGGEST THAT AN AREA SUBJECTED TO MAINTENANCE DREDGING IS ALSO SUBJECTED TO FREQUENT DISTURBANCES FROM SHIP MOVEMENTS AND OTHER HARBOR ACTIVITIES AND THAT THE INFAUNA IS WELL ADAPTED TO THIS THUS, MAINTENANCE DREDGING IS A RELATIVELY NORMAL EVENT AND SHOULD NOT BE EXPECTED TO HAVE CATASTROPHIC EFFECTS. (AUTHOR ABSTRACT)

NATURE OF REFFRENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: CR 1, BENTHOS, DREDGE/FILL, SEDIMENTATION

****
REF. NO.-0431

MCWILLIAMS, W.R. 1977b.

REPRESENTATIVE DREDGE/FILL/CONSTRUCTION PERMIT APPLICATION APPRAISALS.

FLORIDA DEPT. OF ENVIRONMENTAL REGULATION, TALLAHASSEE. UNPAGED.

TWO PERMIT APPLICATIONS, ONE FOR A PRIVATE DOCK, THE OTHER FOR MAINTENANCE DREDGING FOR A

REF. NO.-0431 (CONTINUED)

MARINA CHANNEL ARE PRESENTED AS EXAMPLES OF THOSE RECEIVED BY THE FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION. BRIEF DESCRIPTIONS OF THE ENVIRONMENTAL SETTING OF EACH PROPOSED ACTIVITY ARE INCLUDED. TURBIDITY IS EXPECTED TO BE ASSOCIATED WITH THE DREDGING AND PERIODIC FUTURE DREDGING IS ANTICIPATED. BOTH APPLICATIONS WERE APPROVED.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: UNPUB

DESCRIPTORS: PIER, DREDGE/FILL, CR 3

****
REF. NO.-0370

MCWILLIAMS, W.R., J. 1977a.

OBSERVATIONS ON VARIOUS BIOLOGICAL EFFECTS OF SHORELINE STRUCTURES.

FLORIDA DEPT. OF ENVIRON. REGULATION. PERS COMM.

A NUMBER OF OBSERVATIONS ARE DISCUSSED BRIEFLY. THERE ARE ADVANTAGES OF RIPRAP REVETMENTS OVER BULKHEADS BUT THEY DO TURN A SAND OR MUD SUBSTRATE (FLORIDA HABITAT) INTO A ROCKY INTERTIDAL (NEW ENGLAND HABITAT) ONE. VEGETATION IS PREFERABLE TO STRUCTURES FOR SHORELINE STABILIZATION, BUT IT DOES NOT SERVE AS A MOORAGE. BEACH NOURISHMENT IS OFTEN USED INSTEAD OF GROINS AND JETTIES. HOWEVER THE HIGH ENERGY ENVIRONMENT OF SAND BEACHES HAS VALUE TO SEA TURTLES AND MANY FISH. FLORIDA'S BIGGEST PROBLEMS ARE DREDGE/FILL AND DEAD-END CANAL PROJECTS. CAUSEWAYS HAVE ALSO CAUSED FLOW ALTERATIONS. BOTTOM WEIRS PREVENT THE SALT WEDGE FROM ENTERING ESTUARINE AREAS AND MAY DESTROY ESTUARINE NURSERY AREAS. A SPECIES OF LIMPET IS EXTENDING ITS RANGE NORTHWARD BY USING JETTIES, A PREVIOUSLY ABSENT HABITAT.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: INT

DESCRIPTORS: REVETMENT, CR 3, CR 4, CR 5, JETTY, NURSERY, SHELLFISH

****
REF. NO.-0322

MENZEL, R.W. 1971.

EFFECTS OF MAN'S ACTIVITIES ON ESTUARINE FISHERIES.

UNDERWATER NATURALIST 7(2):19-31.

THE FUNCTION AND IMPORTANCE OF AN ESTUARY IS DISCUSSED. ADVERSE EFFECTS CAUSED BY MAN AS THE RESULT OF DREDGING AND FILLING, DAMMING OF RIVERS AND POLLUTION ARE ALSO DISCUSSED. EMPHASIS IS PLACED ON THE ADVERSE EFFECTS ON OYSTERS, SHRIMP, SPOTTED SEA TROUT AND STRIPED BASS. THE AUTHOR CONCLUDES THAT HE IS NOT 'ADVOCATING THE RETURN TO THE SIMPLE LIFE' BUT THAT THE BEST SOLUTION IS TO MANAGE OUR PROGRESS WISELY. STRICT SAFEGUARDS ARE ADVOCATED TO MAINTAIN LIVING NATURAL RESOURCES.

REF. NO.-0322 (CONTINUED)

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: DREDGE/FILL

****
REF. NO.-0351

METSKER, H.E. 1970.

FISH VERSUS CULVERTS: SOME CONSIDERATIONS FOR RESOURCE MANAGERS.

U.S. FOREST SERVICE TECH. REPT. ETR-7700-5. 19 PP.

THIS PAPER BRINGS TOGETHER PERTINENT INFORMATION ON THE PROBLEMS THAT CULVERTS IMPOSE UPON THE FISHERY RESOURCE. RECOMMENDATIONS FOR DESIGN AND FOR RECONSTRUCTION OF CULVERTS TO ELIMINATE OR REDUCE THE IMPACT ON FISH PASSAGE ARE INCLUDED. THE CULVERT DESIGNED TO HYDROLOGICALLY AND HYDRAULICALLY PASS THE STREAM FLOW THROUGH A FILL IS NOT GENERALLY ACCEPTABLE FOR FISH PASSAGE. MANY OF THE RECOMMENDATIONS WILL INCREASE THE TOTAL COST OF NEW CONSTRUCTION.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

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REF. NO.-0010

MICHIGAN DEPARTMENT OF CONSERVATION. 1957.

GREAT LAKES SHORELINE PROBLEMS: AN APPRAISAL.

MIMEO.

REPORT DESCRIBES PROBLEMS OF INDUSTRIAL WASTE DISPOSAL, INCREASED DEMAND FOR PUBLIC BOATING FACILITIES, USE OF PUBLIC PROPERTY FOR PRIVATE ENDEAVORS, ETC. NEW LAND/WATER USE LEGISLATION IS URGED TO COPE WITH THESE PROBLEMS.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: UNPUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0500

MICHIGAN DEPARTMENT OF NATURAL RESOURCES. UNDATED.

REF. NO.-0500 (CONTINUED)

EROSION.

MICH. DEPT. NATL. RES. 11 PP.

A PAMPHLET IS PRESENTED IN AN EFFORT TO EXPLAIN THE HIGH-RISK EROSION FEATURES OF MICHIGAN'S 1970 SHORELANDS PROTECTION AND MANAGEMENT ACT. (ACT 245, PUBLIC ACTS OF 1970). THE ACT REQUIRES THAT BUILDINGS BE PROTECTED FROM EROSION FOR A PERIOD OF 30 YEARS. THREE METHODS FOR PROTECTION HAVE BEEN DETERMINED AND INCLUDE PROPER SETBACK DISTANCE, CONSTRUCTION OF MOVEABLE BUILDINGS, AND PROTECTIVE STRUCTURES SUCH AS SEAWALLS, REVETMENTS, GROINS, ETC. THE LATTER METHOD IS LIKELY TO BE THE MOST EXPENSIVE.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: CR 8, PROTECT, EROSION

****
REF. NO.-0321

MICHIGAN SEA GRANT ADVISORY PROGRAM. UNDATED.

SHORE EROSION: WHAT TO DO.

SEA GRANT PUBL. MICHU-SG-75-100. 8 PP.

THE PROBLEM OF SHORE EROSION IN THE GREAT LAKES IS DISCUSSED. ADVICE ON WHAT TO DO ABOUT EROSION IS DIRECTED TO THE HOMEOWNER. SANDFILL, BREAKWATERS, GROINS, REVETMENTS AND SEAWALLS ARE PRESENTED AS POSSIBLE SOLUTIONS TO THE PROBLEM

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: DREDGE/FILL, BREAKWATER, CR 8, GROIN, BULKHEAD, REVETMENT, PROTECT, EROSION, LITTORAL PROCESSES

****
REF. NO.-0466

MICHIGAN WATER RESOURCES COMMISSION. UNDATED.

WATER QUALITY APPRAISAL SECTION BIOLOGY UNIT REPORTS ON BIOLOGICAL STUDIES: 1951-1975.

MICHIGAN DEPT. NATL. RES. 32 PP.

THIS LIST OF REPORTS INCLUDES BIOLOGICAL SURVEYS, GENERAL INFORMATION STUDIES; FISH KILL AND INDUSTRIAL SPILL INVESTIGATIONS; TOXIC MATERIALS STUDIES; EUTROPHICATION, PRIMARY PRODUCTION AND INLAND LAKE STUDIES; THERMAL RADIOACTIVITY AND GREAT LAKES STUDIES; CAGED FISH, BIOASSAY AND INDUSTRIAL STUDIES; AND TASTE AND ODOR STUDIES.

NATURE OF REFFRENCE: GENERAL

best copy available

REF. NO.-0466 (CONTINUED)

TYPE OF REFERENCE: UNPUB

DESCRIPTORS: BIBLIOGRAPHY

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REF. NO.-0323

MIFKOVIC, C.S. PETERSEN, M.S. 1975.

ENVIRONMENTAL ASPECTS SACRAMENTO-BANK PROTECTION.

JOURNAL OF THE HYDRAULICS DIVISION. MAY. PP. 543-555.

A HISTORY OF FLOOD CONTROL FOR THE SACRAMENTO RIVER IS PRESENTED. IN THE EARLY SIXTIES THE SACRAMENTO RIVER FLOOD-CONTROL PROJECT WAS MODIFIED TO PROVIDE NEEDED BANK PROTECTION FOR LEVEES. ASPECTS OF THIS SACRAMENTO RIVER BANK PROTECTION PROJECT, SUCH AS ENVIRONMENTAL CONCERNS, PROJECT MODIFICATIONS, MAINTENANCE, WILDLIFE MITIGATION LANDS STUDIES, AND WILD AND SCENIC RIVERS STUDIES, AS WELL AS THE POSSIBILITY OF A COMPREHENSIVE BANK PROTECTION PROGRAM, ARE DISCUSSED. IN 1970 CONGRESS ADOPTED A RESOLUTION AUTHORIZING AN INVESTIGATION OF THE FEDERAL INTEREST IN CHANNEL STABILIZATION AND EROSION CONTROL EXTENDING FROM THE MOUTH OF THE SACRAMENTO RIVER TO SHASTA DAM, AND ON THE LOWER REACHES OF PRINCIPAL TRIBUTARIES. THE STUDY WILL CONSIDER THE FEASIBILITY OF DEVELOPING A PROGRAM OF CHANNEL STABILIZATION TO MINIMIZE CHANNEL MIGRATION AND BANK EROSION. THE AUTHOR IS IN FAVOR OF SUCH COORDINATED PROGRAMS OF PROTECTION AND STABILIZATION.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0486

MILLER, D.S. 1974a.

MATERIALS AND CONSTRUCTION TECHNIQUES FOR FLOATING BREAKWATERS.

PP.247-261 IN PROC. FLOATING BREAKWATERS CONFERENCE, NEWPORT RI. TECH. SER. NO 24. (Q.V. KOWALSKI. 1974A).

THE TYPE OF MATERIALS USED FOR FLOATING BREAKWATERS, THEIR FABRICATION AND FINAL ASSEMBLY IN THE CHOSEN LOCATION CAN BE MORE IMPORTANT THAN THE THEORETICAL CONFIGURATION. MATERIALS USED MUST BE DURABLE AND CORROSION RESISTANT, WITHSTAND IMPACT AND FATIGUE STRESSES, BE UNSUSCEPTIBLE TO DAMAGE FROM FREEZING AND TEMPERATURE FLUCTUATIONS. VARIOUS MATERIAL CHOICES SUCH AS STEEL, TIMBER, REINFORCED AND PRESTRESSED CONCRETE WITH EMPHASIS ON THE TYPE OF CONCRETE WHICH HAS BEEN PROVEN DURABLE AS WELL AS REINFORCING AND PRESTRESS STEEL PROPERTIES, ARE COMMENTED ON. ALL CONSIDERATION IS FROM THE PRATICAL STANDPOINT OF MARINE CONSTRUCTION AND ITS SPECIAL PROBLEMS. TYPES OF MOORAGE AND MATERIALS WHICH CAN BE USED ARE DISCUSSED AS IS THE VERY REAL PROBLEM OF LOCATION AND INSTALLATION IN WHAT MUST BE ASSUMED AS ADVERSE WEATHER AND POOR FOUNDATIONS. (NTIS MODIFIED AUTHOR ABSTRACT)

REF. NO.-0486 (CONTINUED)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: BREAKWATER, PROTECT

****
REF. NO.-0499

MILLER, D.S. 1974b.

PRACTICAL APPLICATIONS OF FLOATING BREAKWATERS FOR SMALL CRAFT HARBORS.

PP. 263-277 IN PROC. FLOATING BREAKWATERS CONFERENCE, NEWPORT, RI. TECH. SER. NO. 24. (Q.V. KOWALSKI, 1974A).

THE APPLICATION AND LIMITATIONS OF FLOATING BREAKWATERS FOR SMALL CRAFT HARBORS ARE ANALYZED. RECOMMENDATIONS ARE GIVEN FOR THE USE OF THIS TYPE OF HARBOR PROTECTION. THE DEVELOPMENT OF A STRUCTURE TO SUIT THE ECONOMICS AND NEEDS OF THE STATE OF ALASKA IS DESCRIBED. THREE PROJECTS USING THE SAME BASIC CONFIGURATION WERE COMPLETED. VARIOUS TYPES OF ANCHORING, CONNECTIONS, AND DESIGN DETAILS WERE USED. USER ACCEPTANCE AND FUTURE USERS ARE EXPLAINED. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: HARBOR, BREAKWATER, PROTECT

****
REF. NO.-0298

MILLIKAN, A. PENTTILA, D. DAY, D. 1974.

PUGET SOUND BAITFISH STUDY, JULY 1, 1973-JUNE 30, 1974.

MARINE FISH INVEST. PROG. REP. STATE OF WASHINGTON, DEPT. OF FISHERIES, MANG. AND RES. DIV. 31 PP.

THIS IS THE THIRD ANNUAL REPORT OF THE PUGET SOUND BAITFISH STUDY. THE REPORT FOCUSES ON ACOUSTIC STOCK ASSESSMENT SURVEYS OF, PRIMARILY, HERRING AND SURF-SMELT BUT INCLUDES A SECTION ON EFFECTS OF BULKHEADS ON SURF-SMELT AND A SECTION ON ARTIFICIAL HERRING SPAWNING SUBSTRATE (DOUGLAS FIR TREES) SUSPENDED OFF A BREAKWATER. THE REPORT DESCRIBES THE FORMULATION OF CRITERIA TO PROTECT SURF-SMELT SPAWNING SITES AND CONCLUDES THAT ARTIFICIAL SUBSTRATES ENHANCE MORTALITY OF HERRING EGGS AND LARVAE.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: GOV REP

DESCRIPTORS: BULKHEAD, BREAKWATER, PROTECT, HABITAT, FISH, SPAWNING, SUBSTRATE, AQUATIC PLANTS, MIGRATION, CR 1

****
REF. NO.-0447

MINISTRY OF THE ENVIRONMEN.   UNDATED.

MARINE CONSTRUCTION GUIDELINES.

MINISTRY OF THE ENVIRONMENT, ONTARIO, CANADA. 6 PP.

THE MINISTRY OF THE ENVIRONMENT ASSESSES THE ENVIRONMENTAL IMPACT OF ALL MARINE CONSTRUCTION IN THE PROVINCE INCLUDING, BUT NOT LIMITED TO DREDGING FILLING, CAUSEWAYS, BRIDGES, WHARVES, BREAKWATERS, SHORE PROTECTION AND WATERCOURSE CROSSING FOR PIPELINES AND UTILITIES. THE INFORMATION REQUIRED FOR PERMIT APPLICATIONS FOR SUCH ACTIVITIES INCLUDES: NOTIFICATION, DESCRIPTION OF THE WORK, IMPACT ON THE ENVIRONMENT AND ALTERNATIVES TO THE PROPOSAL. THIS ARTICLE ALSO LISTS A NUMBER OF REQUIREMENTS FOR WATER QUALITY IMPLICATIONS OF DREDGE SPOIL DISPOSAL, MARINE STRUCTURE PLACEMENT AND WATERCOURSE CROSSINGS.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: GOV REP

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0261

MITCHELL, J.K.   1974.

ISSUES INVOLVED IN UNITED STATES BEACH PRESERVATION AND PROTECTION PROGRAMS.

SHORE AND BEACH 43(1):27-29.

THE FEDERAL COASTAL PROTECTION PROGRAM HAS DEPENDED MAINLY ON STRUCTURAL ENGINEERING DEVICES TO OFFSET EROSION LOSSES. DURING THE LAST TWO DECADES BEACH NOURISHMENT TECHNIQUES HAVE ALSO BEEN APPLIED. THERE ARE NOW SIGNS THAT A NEW POLICY PHASE IS BEGINNING. GUIDELINES SET FORTH IN THE 'NATIONAL SHORELINE STUDY', THE 'U.S. COASTAL ZONE MANAGEMENT ACT (1972)' AND ELSEWHERE SUGGEST THE NEED TO EMPLOY STRINGENT LAND USE CONTROLS AND OTHER MANAGERIAL ADJUSTMENTS SUCH AS HAZARD INSURANCE.

NATURE OF REFFRENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0019

MOCK, C.R.   1966.

NATURAL AND ALTERED ESTUARINE HABITATS OF PENAEID SHRIMP.

PROC. GULFCARIBB. FISH. INST., 19TH ANN. SESS. PP. 86-98.

THIS STUDY DEMONSTRATES WHAT CAN HAPPEN TO A SHRIMP NURSERY AREA WHEN IT IS ALTERED BY

REF. NO.-0019 (CONTINUED)

BULKHEADING. TWO AREAS WERE CHOSEN-ONE ADJACENT TO AN UNALTERED VEGETATIVE SHORE AND THE OTHER NEAR A CONCRETE BULKHEAD. BOTH HAD SIMILAR HYDROLOGY AND SEDIMENT TYPES, BUT DIFFERED IN THE AMOUNT OF ORGANIC DETRITUS IN THE BOTTOM SEDIMENTS AND IN WATER DEPTH. INTENSIVE SAMPLING OVER A 10-MONTH PERIOD PRODUCED 2.5 TIMES MORE BROWN SHRIMP (PENAEUS AZTECUS) AND FOURTEEN TIMES MORE WHITE SHRIMP (P. SETIFERUS) FROM THE NATURAL HABITAT THAN THE BULKHEADED AREA. THIS PREFERENCE FOR THE UNALTERED HABITAT DEPENDED ON THE PHYSICAL RATHER THAN THE HYDROLOGIC CHARACTERISTICS OF THE HABITAT. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: BULKHEAD, INVERTEBRATES, CH 3

****
REF. NO.-0148

MONNEY, N.T. 1973.

ENVIRONMENTAL PROTECTION FOR HARBORS.

J. ENVIRON. SCI. 16(4):17-21.

A BRIEF DESCRIPTION OF FEDERAL POLLUTION CONTROL LAWS WHICH REGULATE HARBOR DISCHARGE BY SHIPS, MARINE POLLUTION, AND SHIP SAFETY REGULATIONS TO REDUCE COLLISIONS AND GROUNDINGS IS GIVEN. SOURCES OF DISCHARGE OF TOXIC SUBSTANCES INCLUDING OIL, SHIP WASTE AND SEWAGE ARE DISCUSSED. A GENERAL SURVEY OF METHODS TO CONTROL SHIP DISCHARGE IN HARBORS IS PRESENTED. IT WAS CONCLUDED THAT HARBOR POLLUTION IS MORE A FUNCTION OF CONCENTRATION OF POLLUTANTS IN A SMALL AREA AND THAT DISCHARGE OF OIL AND OILY WASTES IN THE OPEN OCEAN SHOULD BE PREVENTED BUT THAT THE PREVENTION OF OTHER NON-CASUALTY DISCHARGES IN THESE AREAS IS HIGHLY QUESTIONABLE.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0294

MOORE, D. TRENT, L. 1971.

SETTING, GROWTH, AND MORALITY OF CRASSOSTREA VIRGINICA IN A NATURAL MARSH AND A MARSH ALTERED BY A HOUSING DEVELOPMENT.

PROC. NATL. SHELLFISHERIES ASSOC. 61:51-58.

IN FEBRUARY 1969, ASBESTOS PLATES FOR COLLECTING OYSTER SPAT AND PARTITIONED TRAYS CONTAINING EIGHT SIZE GROUPS OF JUVENILE OYSTERS WERE PLACED IN (1) A DEAD-END CANAL IN A HOUSING DEVELOPMENT CREATED BY DREDGING, BULKHEADING, AND FILLING PART OF A COASTAL MARSH; AND (2) A DEAD-END BAYOU IN AN UNALTERED PART OF THE SAME MARSH IN WEST BAY, TEXAS. THE PLATES, JUVENILE

REF. NO.-0294 (CONTINUED)

OYSTERS AND 12 HYDROLOGICAL VARIABLES WERE THEN MONITORED PERIODICALLY FOR THE NEXT 12 MONTHS. RESULTS INDICATED THAT SPAT SET FROM LATE MAY UNTIL OCTOBER, WITH THE GREATEST SETTLEMENT IN SEPTEMBER. ALTHOUGH NEVER HEAVY, SETTING WAS 14 TIMES GREATER IN THE MARSH THAN IN THE ALTERED AREAS. JUVENILE OYSTERS GREW FASTER IN THE MARSH THAN IN THE ALTERED AREA. MORTALITY RATES OF JUVENILES WERE GREATER IN THE ALTERED CANAL (91% AVERAGE ANNUAL MORTALITY) THAN IN THE NATURAL AREA (52%). MORTALITY RATES WERE POSITIVELY CORRELATED WITH WATER TEMPERATURES IN BOTH AREAS AND UNRELATED TO DERMOCYSTIDIUM MARINUM, (A FUNGUS PARASITE). GREATEST DIFFERENCES IN SPATFALL, GROWTH AND MORTALITY BETWEEN AREAS WERE IN THE SUMMER WHEN DISSOLVED OXYGEN WAS LOWER IN THE NARROW DEAD-END CANALS IN THE ALTERED AREA. ALSO SEVERAL PLANKTON BLOOMS FOLLOWED BY VERY LOW OXYGEN AND THEN FISH KILLS OCCURRED IN THE CANAL DURING THE SUMMER. IT WAS CONCLUDED THAT THE FEASIBILITY OF UTILIZING BULKHEADED CANAL AREAS FOR ECONOMIC OYSTER PRODUCTION APPEARS DOUBTFUL IN DEVELOPMENTS UNLESS THE CANAL SYSTEMS ARE DESIGNED TO INSURE GOOD WATER CIRCULATION. (MODIFIED AUTHOR ABSTRACT)

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: HARBOR, MOORING, SHELLFISH, CR 3, PLANKTON, PRODUCTIVITY

****
REF. NO.-0381

MOORE, H.B. UNDATED.

INTERVIEW CONCERNING IMPACTS OF FLORIDA KEYS BRIDGE REPLACEMENT PROGRAM UPON MARINE BIOLOGY OF THE AREA.

PP.1-20 IN: H.W. LOCHNER, INC. BIOLOGICAL CONSIDERATIONS FOR THE FLORIDA KEYS BRIDGE REPLACEMENT PROGRAM, SUPPL. REP.

PRIMARY CONCERNS IN REGARDS TO THE FLORIDA KEYS BRIDGE REPLACEMENT PROGRAM ARE: 1) ANY NET RESTRICTION OF TIDAL FLOW PRESENTLY OCCURRING UNDER BRIDGES SHOULD BE AVOIDED; 2) SCHEDULING CONSTRUCTION TO AVOID SEASONAL BIOLOGICAL ACTIVITY IS NOT IMPORTANT; 3) ROADWAY RUNOFF PROBLEMS WILL BE MOSTLY CONNECTED WITH CONSTRUCTION MATERIALS; 4) PLACING RUBBLE IN CHANNELS TO BREAK UP FLOW MIGHT RESULT IN NEW MARINE HABITAT, BUT MORE LIKELY IT WOULD SILT OVER; 5) NEW CONSTRUCTION SHOULD TAKE PLACE ON GULF SIDE SINCE BIOTIC VARIETY IS LESS. THE CORAL REEFS ARE PROBABLY OF GREATEST ENVIRONMENTAL VALUE AND SHOULD BE SAVED.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: UNPUB

DESCRIPTORS: BRIDGE, HABITAT, INVERTEBRATES, CR 4

****
REF. NO.-0314

MOORE, R.C.A. 1977.

SILETZ SPIT'S STRUGGLE WITH SEA INTENSIFIES.

REF. NO.-0314 (CONTINUED)

OREGON JOURNAL. MARCH 14. P. 15.

THE PRESENT SITUATION OF SILETZ BAY SPIT WHERE SALISHAN DEVELOPMENT HOMES ARE LOCATED IS DISCUSSED. THE DEVELOPMENT HAS SUFFERED HEAVY EROSION DAMAGE SINCE IT WAS STARTED IN THE EARLY 1960'S. DESPITE CONTINUING EROSION PROBLEMS, BUILDING PERMITS ARE STILL BEING ISSUED FOR SELECTED SITES. STUDIES HAVE BEEN CONDUCTED TO DISCOVER WHY SOME STORMS CAUSE EROSION AND OTHERS DO NOT. SURF WAVE HEIGHTS, RECENT STORM ACTIVITY, RIP CURRENTS AND TIDES WERE DISCOVERED TO BE IMPORTANT FACTORS. BAYOCEAN, A POPULAR RESORT IN THE 1930'S ON THE SPIT AT TILLAMOOK BAY IS MENTIONED. IT WAS DESTROYED BECAUSE A JETTY WAS BUILT ON THE NORTH SIDE OF THE BAY'S MOUTH. IT IS CONCLUDED THAT THE OCEAN WILL FOLLOW ITS NATURAL COURSE AND THAT IF PEOPLE INTEND TO BUILD ON SAND BEACHES, THEY WILL HAVE TO PAY THE CONSEQUENCES.

NATURE OF REFFRENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: JETTY, EROSION, CR 1

****
REF. NO.-0442

MORTON, J.W. 1976.

ECOLOGICAL IMPACTS OF DREDGING AND DREDGE SPOIL DISPOSAL: A LITERATURE REVIEW.

M.S. THESIS. CORNELL UNIV. ITHACA, NY. 112 PP.

A COMPREHENSIVE REVIEW OF THE LITERATURE ON THE PHYSICAL, CHEMICAL, AND BIOLOGICAL IMPACTS OF DREDGING AND SPOIL DISPOSAL IN ESTURARIES AND IDENTIFICATION OF ALTERNATIVE SPOIL DISPOSAL METHODS IS PRESENTED. ALTHOUGH DIRECT BURIAL AND HABITAT DESTRUCTION ARE THE TWO MOST OBVIOUS BIOLOGICAL IMPACTS OF DREDGING AND DUMPING, THESE IMPACTS CAN BE MINIMIZED BY CAREFUL TIMING AND PLACEMENT OF THE DREDGING AND DISPOSAL OPERATIONS. A CRITICAL PROBLEM REQUIRING FURTHER STUDY IS THE UPTAKE, ACCUMULATION AND RECYCLING OF CONTAMINANTS ASSOCIATED WITH POLLUTED DREDGE SPOILS BY MARSH VEGETATION, PHYTOPLANKTON, ZOOPLANKTON, BENTHOS, AND FISH.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: THESIS

DESCRIPTORS: DREDGE/FILL, EROSION, SEDIMENTATION, SUBSTRATE, BENTHOS, PLANKTON, PRODUCTIVITY, HABITAT, FISH

****
REF. NO.-0111

NAGAI, S. 1961.

EXPERIMENTAL STUDIES OF SPECIALLY SHAPED CONCRETE BLOCKS FOR ABSORBING WAVE ENERGY.

PROC. 7TH CONF. ON COASTAL ENG. PP. 659-673.

REF. NO.-0111 (CONTINUED)

LABORATORY TESTS WERE PERFORMED TO DETERMINE WAVE ENERGY ABSORBING ABILITY OF AND STABILITY CHARACTERISTICS AGAINST BREAKING WAVES OF VARIOUS SHAPED PRE-CAST CONCRETE ARMOR UNITS USED FOR PROTECTIVE COVER LAYERS ON THE SEAWARD SLOPES OF RUBBLE-MOUND BREAK-WATERS AND FOR PARALLEL DYKES PLACED THE OFFSHORE SIDES OF SEAWALLS. A NEW SHAPE OF ARMOR UNITS, A HOLLOW TETRAHEDRON CONCRETE BLOCK WITH A POROSITY OF 25 PERCENT IN THE BODY WAS PROVED TO HAVE BETTER CHARACTERISTICS FOR WAVE ENERGY ABSORBING ABILITY AND ATTENUATION OF WAVE RUN-UP, AS WELL AS FOR STABILITY AGAINST BREAKING WAVES ALSO THAN TETRAPOD OR OTHER ARMOR UNITS USED UP-TO-DATE. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: BREAKWATER

****
REF. NO.-0508

NASSAU-SUFFOLK REGIONAL PLANNING BOAR. 1973.

GUIDELINES FOR LONG ISLAND COASTAL MANAGEMENT.

REGIONAL MARINE RESOURCES COUNCIL. 19 PP. + APPENDICES.

BACKGROUND INFORMATION AND PLANNING GUIDELINES ARE PRESENTED FOR THE FOLLOWING AREAS OF ENVIRONMENTAL CONCERN: COAST STABILIZATION AND PROTECTION; DREDGING AND DREDGING SPOIL DISPOSAL; INTEGRATED WATER SUPPLY AND WASTEWATER DISPOSAL; AND WETLANDS MANAGEMENT

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: DREDGE/FILL, CH 7, GROIN

****
REF. NO.-0523

NATIONAL ASSOCIATION OF CONSERVATION DISTRICT. UNDATED.

GUIDELINES AND STANDARDS FOR EROSION AND SEDIMENT CONTROL THAT CAN BE USED AT STATE AND DISTRICT LEVELS.

P.O. BOX 855. LEAGUE CITY, TEXAS. 29 PP.

SUGGESTED GUIDELINES AND STANDARDS FOR EROSION AND SEDIMENT CONTROL ARE GIVEN. STATE GUIDELINES FOR GOOD LAND USE, SOUND DEVELOPMENT, CONTROL OF EROSION AND RUNOFF, AND ENVIRONMENTAL IMPROVEMENT SHOULD BE BASED ON RELEVANT PHYSICAL AND DEVELOPMENTAL INFORMATION, IDENTIFICATION OF AREAS WITH CRITICAL EROSION AND SEDIMENT PROBLEMS, AND SHOULD CONTAIN CONSERVATION STANDARDS RELATED TO VARIOUS KINDS OF SOIL AND LAND USE. THESE STANDARDS SHOULD INCLUDE CRITERIA, TECHNIQUES, CONSERVATION MEASURES, AND METHODS FOR CONTROLLING EROSION AND SEDIMENT. SUGGESTED SOURCES OF BASIC DATA FOR PLANNING AND DEVELOPMENT, BASIC CONSERVATION

REF. NO.-0523 (CONTINUED)

PRINCIPLES AND CONSERVATION MEASURES ARE OUTLINED. EXAMPLES OF LOCAL PRACTICE STANDARDS AND SPECIFICATIONS AND JOB SHEETS WHICH GIVE DETAILS OF HOW TO DO SIMPLE CONSERVATION JOBS ARE GIVEN.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0235

NATIONAL SEA GRANT DEPOSITORY. 1974.

SEA GRANT PUBLICATIONS INDEX 1973.

COMPILED BY P.K. WEEDMAN UNIVERSITY OF RI. NARRAGANSETT. 2 VOLS.

BIBLIOGRAPHIC INDEX OF SEA-GRANT RELATED PROJECTS, REPORTS AND PUBLICATIONS FOR 1973.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: BIBLIOGRAPHY

****
REF. NO.-0255

NATIONAL SEA GRANT DEPOSITORY. 1975a

SEA GRANT NEWSLETTER INDEX 1974.

COMPILED BY P.K. WEEDMAN UNIVERSITY OF R.I., NARRAGANSETT. NSGD-I-74-004. 160 PP.

INDEX OF ISSUES OF NEWSLETTERS PRODUCED IN 1974 WITH SEA GRANT SUPPORT AND RECEIVED BY THE NATIONAL SEA GRANT DEPOSITORY.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: BIBLIOGRAPHY

****
REF. NO.-0256

NATIONAL SEA GRANT DEPOSITORY. 1975b.

SEA GRANT PUBLICATIONS INDEX 1974.

REF. NO.-0256 (CONTINUED)

COMPILED BY P.K. WEEDMAN. UNIVERSITY OF R.I., NARRAGANSETT. NSGD-I-74-002,003. 2 VOLS.

INDEX OF ALL MATERIALS RECEIVED BY THE NATIONAL SEA GRANT DEPOSITORY IN 1974, WITH THE EXCEPTION OF NEWSLETTERS WHICH APPEAR IN THE SEA GRANT NEWSLETTER INDEX.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: BIBLIOGRAPHY

****
REF. NO.-0257

NATIONAL SEA GRANT DEPOSITORY. 1976a.

SEA GRANT NEWSLETTERS INDEX 1975.

EDITED BY P.K. WEEDMAN. UNIVERSITY OF R.I., NARRAGANSETT. NSGD-I-75-003. 168 PP.

INDEX OF ISSUES OF NEWSLETTERS RECEIVED BY THE NATIONAL SEA GRANT DEPOSITORY IN 1975.

NATURE OF REFFRENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: BIBLIOGRAPHY

****
REF. NO.-0258

NATIONAL SEA GRANT DEPOSITORY. 1976c.

SEA GRANT PUBLICATIONS INDEX 1975.

EDITED BY P.K. WEEDMAN. UNIVERSITY OF R.I., NARRAGANSETT. NSGD-I-75-001,002. 2 VOLS.

INDEX OF ALL MATERIALS RECEIVED BY THE NATIONAL SEA GRANT DEPOSITORY IN 1975, WITH THE EXCEPTION OF NEWSLETTERS WHICH APPEAR IN THE SEA GRANT NEWSLETTERS INDEX.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: BIBLIOGRAPHY

****
REF. NO.-0429

NATIONAL SEA GRANT DEPOSITORY. 1976b.

REF. NO.-0429 (CONTINUED)

SEA GRANT NEWSLETTER INDEX, 1973.

EDITED BY P.K. WEEDMAN, UNIVERSITYOF R.I., NARRAGANSETT.

INDEX OF SEA GRANT NEWSLETTERS FROM ALL AREAS. NEWSLETTERS CONTAIN INFORMATION OF A POPULAR NATURE CONCERNING ONGOING RESEARCH.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: BIBLIOGRAPHY

****
REF. NO.-0430

NATIONAL SEA GRANT DEPOSITORY. 1973.

SEA GRANT NEWSLETTER INDEX, 1968-1972.

EDITED BY P.K. WEEDMAN. UNIVERSITY OF R.I., NARRAGANSETT. TECH. MEMORANDUM EDS ESIC-10.

INDEX OF SEA GRANT NEWSLETTERS FROM ALL AREAS. NEWSLETTERS CONTAIN INFORMATION OF A POPULAR NATURE CONCERNING ONGOING RESEARCH.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: BIBLIOGRAPHY

****
REF. NO.-0102

NECE, R.E. WELCH, E.B. REED, J.R. 1975.

FLUSHING CRITERIA FOR SALT WATER MARINAS.

UNIV. OF WASHINGTON DEPT.OF CIVIL ENG. DOE PROJECT W-18 TECH REP. NO. 42. 50 PP.

WATER QUALITY PROBLEMS, SUCH AS NOTICEABLE DENSITIES OF PLANKTON ALGAE AND SUBSEQUENT REDUCTION IN DISSOLVED OXYGEN CONTENT, WERE OBSERVED IN ONLY ONE OF FOUR STUDIED MARINAS. A PLANKTON ALGAL BLOOM REACHED AT LEAST 25 U/L CHL A IN ONE SECTION OF LAGOON POINT MARINA AND WAS FOLLOWED BY DISSOLVED OXYGEN CONTENT AS LOW AS 2 MG/L. THIS OCCURRED IN ONE SECTION OF THE POORLY FLUSHED, CLOSED END OF THE MARINA. FROM THESE OBSERVATIONS, AND AN ASSUMED MAXIMUM PLANKTON GROWTH RATE OF 100% PER DAY, NO3-N AS THE LIMITING NUTRIENT AND 50% OF SURFACE INTENSITY AS OPTIMUM FOR LIGHT, THE EXPECTED MAXIMUM STEADY STATE PLANKTON BIOMASS WAS ESTIMATED FOR VARYING MIXING DEPTHS (MEAN DEPTH OF MARINA) AND DILUTION RATES. THE OBSERVED PLANKTON BIOMASS WAS VERY CLOSE TO WHAT WOULD BE EXPECTED FROM A MARINA LIKE LAGOON POINT THAT HAS A 2.5 M MEAN DEPTH AND DILUTION RATE PREDICTED TO BE AS LOW AS 10% PER DAY IN SOME SECTIONS FROM A PHYSICAL SCALE MODEL. FROM THESE FINDINGS, CRITERIA ARE SUGGESTED SUCH THAT TO

REF. NO.-0102 (CONTINUED)

AVOID WATER QUALITY PROBLEMS OF THIS TYPE THE DILUTION RATE SHOULD BE AT LEAST 30% PER DAY AND THE DEPTH 2 M. IF 1 M DEEPER, DILUTION COULD BE AS LOW AS 10% PER DAY, BUT INCREASING DEPTH TO AVOID PROBLEMS IS PROBABLY NOT AS EFFECTIVE AS INCREASING DILUTION RATE BECAUSE OF POTENTIALLY REDUCED MIXING DEPTHS FROM THERMAL STRATIFICATION IN POORLY FLUSHED DEEPER SITUATIONS. PHYSICAL SCALE MODELS ARE CONSIDERED TO BE THE MOST RELIABLE METHOD TO DETERMINE IF DILUTION RATES FOR A GIVEN MARINA ARE ACCEPTABLE, BECAUSE OF THE PRESENT INADEQUACY OF MATHEMATICAL MODELS. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: HARBOR, HARBOR, CUMULATIVE EFFECTS, PRODUCTIVITY, CR 1

****
REF. NO.-0344

NELSON, F.P. 1976.

LOWER SANTEE RIVER ENVIRONMENTAL QUALITY STUDY: AN ASSESSMENT OF SELECTED BIOLOGICAL AND PHYSICAL PARAMETERS.

SOUTH CAROLINA WATER RESOURCES COMMISSION, COLUMBIA, SC. REPT. NO. 122. 6 PP.

THE OBJECTIVE OF THE STUDY WAS TO ASSESS THE VARIOUS HYDROLOGICAL AND BIOLOGICAL FEATURES OF THE LOWER SANTEE RIVER AREA FOR BASELINE INFORMATION. AREAS OF INVESTIGATION INCLUDED WATER QUALITY, PHYTOPLANKTON, VASCULAR PLANT AND SMALL MAMMAL SURVEYS. INPUTS WERE MADE FROM BOTH STATE AND FEDERAL AGENCIES.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0222

NELSON, F.P. 1974.

THE COOPER RIVER ENVIRONMENTAL STUDY.

SOUTH CAROLINA WATER RESOURCES COMMISSION, COLUMBIA, SC. REPT. NO. 117. 164 PP.

BIOLOGICAL, CHEMICAL, AND PHYSICAL FEATURES OF THE COOPER RIVER WERE STUDIED. THIS STUDY AUGMENTS PREVIOUS STUDIES OF THE FEDERAL WATER POLLUTION CONTROL ADMINISTRATION, BUT ITS SAMPLING INTENSITY ALSO ADDRESS MORE INTIMATELY THE ATTRIBUTES OF THE RIVER ITSELF FOR UPDATED BASELINE INFORMATION. THE AREAS OF INVESTIGATION INCLUDE AQUATIC MACROORGANISMS, MARSH INVENTORY, BENTHIC COMMUNITY, WATER QUALITY PARAMETERS, AND GEOLOGY OF THE STUDY AREA.

NATURE OF REFERENCE: BIO

REF. NO.-0222 (CONTINUED)

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

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REF. NO.-0534

NEW ENGLAND RIVER BASINS COMMISSION. 1976.

THE OCEAN'S REACH.

NEW ENGLAND RIVER BASINS COMMISSION, BOSTON, MA. 91 PP.

A DIGEST OF A WORKSHOP ENTITLED 'IDENTIFYING THE EXTENT OF COASTAL FLOOD HAZARD AREAS AND ASSOCIATED RISK ZONES' IS PRESENTED FOLLOWED BY SOME BACKGROUND MATERIAL USED AS A REFERENCE FOR SETTING UP THE WORKSHOP. VARIOUS FACETS OF THE PROBLEM ARE DEFINED, LINKAGES BETWEEN THE TWO MAJOR FEDERAL PROGRAMS OF FLOOD INSURANCE AND COASTAL ZONE MANAGEMENT ARE DISCUSSED, AND RECOMMENDATIONS AND CONCLUSIONS ARE PRESENTED.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: CR 7, BULKHEAD, REVETMENT, PROTECT

****
REF. NO.-0415

NEW YORK DEPARTMENT OF TRANSPORTATION. 1972.

A COMPREHENSIVE STUDY OF PROPOSED BRIDGE CROSSINGS OF LONG ISLAND SOUND. SUMMARY.

N.Y. STATE DEPT. OF TRANSPORT. 70 PP.

THIS REPORT SUMMARIZES THE BASIC FINDINGS AND RECOMMENDATIONS OF A COMPREHENSIVE STUDY OF PROPOSED BRIDGE CROSSINGS OF LONG ISLAND SOUND AND PRESENTS THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION RECOMMENDATIONS FOR FUTURE ACTION. TRANSPORTATION, SOCIAL, ECONOMIC AND ENVIRONMENTAL CONSIDERATIONS ARE ADDRESSED AND FINANCIAL FEASIBILITY SHOWN. AT QUESTION ARE EIGHT ALTERNATIVE ROUTES AT VARIOUS POINTS ALONG THE SOUND. A PREFERRED ROUTE IS DESCRIBED AND CONSTRAINTS PLACED UPON ITS PLANNING AND CONSTRUCTION.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: BRIDGE, LAND TRANSPORT, CR 7, SHELLFISH, BIRDS, HABITAT

****
REF. NO.-0044

NIERING, W.A. 1970.

REF. NO.-0044 (CONTINUED)

THE DILEMMA OF THE COASTAL WETLANDS: CONFLICT OF LOCAL, NATIONAL, AND WORLD PRIORITIES.

PAGES 143-156 IN: THE ENVIRONMENTAL CRISIS. H.W. HELFRICH JR., ED. YALE U. PRESS. NEW HAVEN.

COASTAL WETLANDS ARE STRATEGICALLY LOCATED AND CONSEQUENTLY THEY ARE SUBJECT TO CONSTANT CONFLICTS. THE ESTUARINE ZONE SERVES MANY PURPOSES SO CONFLICTS ARISE. ABOUT 7 PERCENT OF THE IMPORTANT FISH AND WILDLIFE HABITATS IN THESE ESTUARINES HAVE BEEN DESTROYED. THE ESTUARINE TIDAL MARSH IS ONE OF THE WORLD'S MOST PRODUCTIVE ECOSYSTEMS. 90 PERCENT OF OUR TOTAL SEAFOOD HARVEST IS DEPENDENT IN ONE WAY OR ANOTHER UPON ESTUARINE ENVIRONMENT. PRODUCTION OF WILD LIFE IS ANOTHER IMPORTANT CHARACTERISTIC. DREDGING AND FILLING ARE TWO CONFLICTS AS IS AGRICULTURAL POLLUTION AND THERMAL HEATING. A MORATORIUM ON FURTHER DESTRUCTION OF WETLAND RESOURCES IS RECOMMENDED.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0015

NIXON, S.W. OVIATT, C.A. NORTHBY, S.L. 1973.

ECOLOGY OF SMALL BOAT MARINAS.

MARINE TECH. REP. SERIES NO. 5, UNIV. OF RHODE ISLAND, KINGSTON.

IN WICKFORD HARBOR, RHODE ISLAND, A YACHT MARINA AREA AND A SALT MARSH COVE WERE CONSIDERED AS ECOLOGICAL SYSTEMS AND COMPARED TO EVALUATE BIOLOGICAL POPULATIONS AND MAGNITUDES OF PRODUCTION AND RESPIRATION. VOLUME AND FLUSHING CHARACTERISTICS OF BOTH AREAS WERE SIMILAR. ANALYSES WERE MADE IN EACH COVE ON MARSH GRASS PRODUCTION, SUSPENDED PARTICULATE MATTER, PHYTOPLANKTON, NUTRIENTS, BACTERIA, DISSOLVED ORGANICS, COPPER LEVELS, FISH AND SEDIMENTS. BIOMASS AND METABOLISM MEASUREMENTS WERE MADE ON THE FOULING COMMUNITIES PRESENT ON FLOATS AND PILINGS IN THE MARINAS. PRELIMINARY BIOASSAYS WERE PERFORMED WITH CONCENTRATIONS OF OUTBOARD MOTOR EXHAUST WATER ON SEVERAL SPECIES OF ESTUARINE ORGANISMS. SOME ADDITIONAL COMPARATIVE MEASUREMENTS WERE TAKEN INSIDE AND OUTSIDE OTHER MARINAS LOCATED IN NARRAGANSETT BAY. NO MAJOR DIFFERENCES WERE FOUND IN MARSH GRASS PRODUCTION, CONCENTRATIONS OF SUSPENDED PARTICULATE MATTER, NUTRIENTS, BACTERIA, DISSOLVED ORGANICS, INFAUNA, OR SEDIMENT METABOLISM. COPPER LEVELS, WHILE LOWER THAN TOXIC CONCENTRATIONS REPORTED IN THE LITERATURE, WERE HIGHER IN THE MARINA COVE, RANGING FROM 0.009 UG/G IN THE WATER TO 160 UG/G IN THE FOULING COMMUNITY. FISH SPECIES REACHED THE SAME LEVELS OF DIVERSITY IN BOTH THE MARINA AND THE MARSH COVE, BUT ABUNDANCE WAS GREATER IN THE MARSH COVE DUE TO THE PRESENCE OF DENSE JUVENILE MENHADEN SCHOOLS. THE FOULING COMMUNITIES OF THE MARINAS, WHICH APPEARED TO BE A FOOD SOURCE FOR JUVENILE MUMMICHOGS (FUNDULUS HETEROCLITUS), EXERTED A SIGNIFICANT OXYGEN DEMAND ON THE MARINA COVE. DIURNAL CURVES OF DISSOLVED OXYGEN SHOWED LOWER CONCENTRATIONS AT THE END OF THE NIGHT IN MARINA AREAS THAN IN ADJACENT WATERS. FOR THIS REASON, AND BECAUSE PRELIMINARY BIOASSAYS INDICATED SOME TOXICITY DUE TO EXHAUST WATERS, IT IS SUGGESTED THAT MARINA SITES BE WELL FLUSHED WITH OXYGENATED TIDAL WATERS. THE LUXURIOUS FOULING GROWTHS WHICH DEVELOPED IN THE MARINA COVE MAY SERVE AS ADDITIONAL FOOD SOURCES TO COMPLEMENT THE DETRITUS INPUT FROM THE SALT MARSH.IN MOST RESPECTS THE MARINA COVE AND THE MARSH COVE APPEARED TO BE NOT ONLY

REF. NO.-0015 (CONTINUED)

SIMILAR, BUT ALSO COMPATIBLE ECOLOGICAL SYSTEMS. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: HARBOR, MOORING, PRODUCTIVITY, AQUATIC PLANTS, CR 7

****
REF. NO.-0310

NOBLE, R.M. 1971.

SHORELINE CHANGES, HUMBOLDT BAY, CALIFORNIA.

UNIVERSITY OF CALIFORNIA HYDRAULIC ENGINEERING LABORATORY TECH. REP. HEL-24-2. 36 PP.

THE MOVEMENT OF LITTORAL DRIFT IS A MAJOR CONCERN IN THE DESIGN OF COASTAL INSTALLATIONS. THIS REPORT DISCUSSES THE SHORELINE CHANGES IN THE VICINITY OF THE HUMBOLDT ENTRANCE FROM THE TIME THAT IT WAS AN UNIMPROVED TIDAL INLET THROUGH THE YEARS OF MODIFICATION TO THE ENTRANCE. THE HUMBOLDT ENTRANCE SHOWS THE EFFECTS THAT LITTORAL BARRIERS HAVE ON A SHORELINE AS WELL AS ON THE BOTTOM CONTOURS. TIDAL CURRENTS WERE CONCENTRATED AND SCOURED THE ENTRANCE CHANNEL, MOVING SHALLOWER BOTTOM CONTOURS SEAWARD. THE JETTIES ACTED AS LITTORAL BARRIERS CAUSING SEAWARD ADVANCE OF THE NORTH SPIT AND EROSION OF THE SOUTH SPIT. WHEN THE ENTRANCE CHANNEL WAS DREDGED BEYOND ITS EQUILIBRIUM DEPTH, ANNUAL DREDGING AND BY-PASSING OF THE LITTORAL MATERIAL TO THE SOUTH SPIT WAS REQUIRED TO MAINTAIN THE SOUTH SHORELINE. THE DESIGN OF STABLE JETTIES AT HUMBOLDT BAY IS STILL A SERIOUS PROBLEM WITH THE CONTINUOUS DAMAGE DONE TO THE JETTIES BY THE SEVERE WAVE ACTION IN THAT AREA.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: STABILIZE, JETTY, EROSION, LITTORAL PROCESSES, CR 1

****
REF. NO.-0526

NYBAKKEN, J. STEPHENSON, M. 1975.

EFFECTS OF ENGINEERING ACTIVITIES ON THE ECOLOGY OF PISMO CLAMS.

U.S. ARMY CORPS OF ENGINEERS. CERC MISC. PAPER NO. 8-75. 65 PP.

THREE ASPECTS OF THE ECOLOGY OF PISMO CLAMS (TIVELA STULTORUM) WERE INVESTIGATED IN MONTEREY BAY, CALIFORNIA: DISTRIBUTION, REPRODUCTION CYCLE, AND AGE AND GROWTH. PISMO CLAM POPULATIONS WERE FOUND TO BE RESTRICTED TO BAY AREAS BETWEEN THE SALINAS RIVER AND SANTA CRUZ. HIGHEST DENSITIES RECORDED WERE INTERTIDAL, AND SUBTIDAL CLAM BEDS WERE FEW AND WITH LOW DENSITIES. MOST CLAMS APPEARED RANDOMLY DISPERSED, AND DIFFERENT SIZE CLASSES DID NOT SHOW A VERTICAL SEPARATION.THE PRESENCE AND ABSENCE OF CLAMS WERE SHOWN TO BE CORRELATED WITH BEACH SLOPE AND GRAIN SIZE. PISMO CLAMS MATURE IN THEIR SECOND YEAR IN MONTEREY BAY, AND THE PRIMARY SPAWNING

REF. NO.-0526 (CONTINUED)

TIME IS IN SEPTEMBER AND OCTOBER. THE GROWTH RATE IS MORE RAPID IN YOUNG CLAMS AND VARIES THROUGHOUT THE YEAR IN ALL SIZE CLASSES BUT IS MOST RAPID IN THE SUMMER AND FALL.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: GOV REP

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0281

ODUM, W.E. 1970.

INSIDIOUS ALTERATION OF THE ESTUARINE ENVIRONMENT.

TRANS. AMER. FISH. SOC. 99:836-847.

SHALLOW ESTUARIES ARE CHARACTERIZED BY CERTAIN FEATURES WHICH MAKE THEM RICH AND PRODUCTIVE ECOSYSTEMS; THESE SAME CHARACTERISTICS, HOWEVER, ARE RESPONSIBLE FOR THE DELICATE NATURE OF THE ESTUARINE ENVIRONMENT AND GREATLY ENHANCE ITS VULNERABILITY TO SUBTLE ALTERATION. IN THIS PAPER AND THE SUBSEQUENT DISCUSSIONS, WE EXAMINE SOME OF THESE FEATURES AND DISCUSS HOW INSIDIOUS CHANGES IN ESTUARIES CAN OCCUR. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: HABITAT, BULKHEAD, CUMULATIVE EFFECTS, DREDGE/FILL

****
REF. NO.-0197

OFFICE OF COASTAL ZONE MANAGEMENT. 1976c.

RECENT ACQUISITIONS OF THE COASTAL ZONE INFORMATION CENTER.

NOAA, WASHINGTON, D.C. JULY-AUGUST, 37 PP.

JULY-AUGUST INDEX OF WRITTEN MATERIAL ACQUIRED BY THE COASTAL ZONE INFORMATION CENTER.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: UNPUB

DESCRIPTORS: BIBLIOGRAPHY

****
REF. NO.-0198

OFFICE OF COASTAL ZONE MANAGEMENT. 1976a.

REF. NO.-0198 (CONTINUED)

COASTAL ZONE INFORMATION CENTER BIBLIOGRAPHY ON OUTER CONTINENTAL SHELF.

NOAA, WASHINGTON D.C. JUNE. 6 PP.

INDEX OF WRITTEN MATERIAL RELATED TO THE OUTER CONTINENTAL SHELF

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: UNPUB

DESCRIPTORS: BIBLIOGRAPHY

****
REF. NO.-0199

OFFICE OF COASTAL ZONE MANAGEMENT. 1976d.

RECENT ACQUISITIONS OF THE COASTAL ZONE INFORMATION CENTER.

NOAA, WASHINGTON D.C. AUGUST-SEPTEMBER. 68 PP.

AUGUST-SEPTEMBER INDEX OF WRITTEN MATERIAL ACQUIRED BY THE COASTAL ZONE INFORMATION CENTER.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: UNPUB

DESCRIPTORS: BIBLIOGRAPHY

****
REF. NO.-0200

OFFICE OF COASTAL ZONE MANAGEMENT. 1976e.

RECENT ACQUISITIONS OF THE COASTAL ZONE INFORMATION CENTER.

NOAA, WASHINGTON D.C. NOV-DEC. 14 4PP.

NOVEMBER-DECEMBER INDEX OF WRITTEN MATERIAL ACQUIRED BY THE COASTAL ZONE INFORMATION CENTER.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: UNPUB

DESCRIPTORS: BIBLIOGRAPHY

****
REF. NO.-0269

OFFICE OF COASTAL ZONE MANAGEMENT. 1976b.

REF. NO.-0269 (CONTINUED)

RECENT ACQUISITIONS OF THE COASTAL ZONE INFORMATION CENTER.

NOAA, WASHINGTON, D.C. OCTOBER. 120 PP.

INDEX OF WRITTEN MATERIAL ACQUIRED BY THE COASTAL ZONE INFORMATION CENTER.

NATURE OF REFFRENCE: GENERAL

TYPE OF REFERENCE: UNPUB

DESCRIPTORS: BIBLIOGRAPHY

****
REF. NO.-0137

OLIVER, J.S. SLATTERY, P.N. 1976.

EFFECTS OF DREDGING AND DISPOSAL ON SOME BENTHOS AT MONTEREY BAY, CALIFORNIA.

U.S. ARMY CORPS OF ENGINEERS. CERC TECH. PAPER NO. 76-15. 81 PP.

THE SPECIFIC OBJECTIVES OF THIS STUDY WERE TO DOCUMENT:(A) NATURAL TEMPORAL VARIATIONS IN BENTHIC ASSEMBLAGES AND CHANGES RELATED TO SUBSTRATE STABILITY, (B) THE INITIAL EFFECTS OF DREDGING AND SUBSEQUENT RECOLONIZATION,(C) THE EFFECTS OF DISPOSAL OF DREDGED MATERIAL ON THE BENTHOS AND SUBSEQUENT RECOVERY OF THE FAUNA, AND(D) THE ROLE OF FAUNA DISTRIBUTION AND REPRODUCTIVE ABILITIES UPON RECOVERY OR RECOLONIZATION OF DISTURBED AREAS. EXPERIMENTAL BURIAL AND DREDGING WAS CONDUCTED. THE RESULTS SUGGEST:(1) UNDERWATER DISPOSAL OF DREDGED MATERIAL SHOULD BE MADE IN UNSTABLE AREAS IF POSSIBLE, (2) THE ULTIMATE RECOVERY OR RECOLONIZATION OF A DREDGED AREA OR A DISPOSAL AREA DEPENDS UPON TIMING OF THE ACTION IN RELATION TO THE REPRODUCTIVE CYCLES AND DISTRIBUTIVE ABILITIES OF THE BENTHIC ORGANISMS PRESENT IN AND AROUND THE AREA.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: DREDGE/FILL, SEDIMENTATION, BENTHOS, SUCCESSION, SPAWNING, CR 1

****
REF. NO.-0113

OLMSTEAD, L.W. LYNDE, G.A. 1958.

FEEDER BEACHES AND GROINS RESTORE PRESQUE ISLE PENINSULA.

CIVIL ENGINEERING. 42:172-175.

A DESCRIPTION OF THE CURRENT ATTEMPT TO RESTORE AND MAINTAIN THE PRESQUE ISLE PENINSULA NEAR ERIE, PENNSYLVANIA IS PRESENTED. A SYSTEM USING GROINS, BULKHEADS, SAND BEACH FILL AND FEEDER BEACHES WAS USED. THE SUCCESS OF THE PROGRAM WAS NOT DISCUSSED.

NATURE OF REFERENCE: ENG

REF. NO.-0113 (CONTINUED)

TYPE OF REFERENCE: PUB

DESCRIPTORS: CR 8, EROSION, GROIN, STABILIZE, BULKHEAD

****
REF. NO.-0073

OLSEN, E.J. 1974.

NORTHERN ST. JOHNS COUNTY COASTAL MANAGEMENT PLAN.

SHORE AND BEACH. 42(2):29-35.

THE STUDY WAS DESIGNED TO DEVELOP A RATIONALE BY WHICH BOTH A FLEXIBLE COASTAL SETBACK LINE AND LONG RANGE COASTAL MANAGEMENT PLANS COULD BE ARRIVED AT FOR ABOUT 6 MILES OF SHORELINE IN ST. JOHNS COUNTY, FLORIDA. A DETAILED ANALYSIS OF THE VEGETATIVE ECOSYSTEM AND TOPOGRAPHY AS WELL AS THE BEACH DYNAMICS WAS MADE. THE STUDY APPLIES THE THREE BASIC ZONING CATEGORIES OF PRESERVATION, CONSERVATION AND DEVELOPMENT TO THE COMPLICATED AND SENSITIVE BEACH DUNE INTERFACE. THESE ZONES ARE BASICALLY IMPLENENTED BY LEGALIZATION OF STRICT BUILDING RESTRICTIONS AND SETBACKS BASED ON THE CREST LINE OF THE PRIMARY DUNE SYSTEM.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0066

OMHOLT, T. 1974b.

SMALL GROINS ON THE SHORES OF LONG ISLAND SOUND.

SHORE AND BEACH. 42(1):11-13.

THIS ARTICLE SUMMARIZED THE MAIN RESULTS OF A GROIN STUDY ON THE NORTH SHORE OF SUFFOLK COUNTY, NEW YORK COMPARING AERIAL PHOTOGRAPHS OVER THIRTY YEARS. A TOTAL OF 51 GROINS CONSTRUCTED IN 14 AREAS WAS SURVEYED. OVER 50 PERCENT OF THESE GROINS WERE 100 FEET OR LESS IN LENGTH AND 90 PERCENT WERE LESS THAN 200 FEET.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: GROIN, CR 7, LITTORAL PROCESSES, EROSION

****
REF. NO.-0071

OMHOLT, T. 1974a.

REF. NO.-0071 (CONTINUED)

EFFECTS OF SMALL GROINS ON SHORELINE CHANGES ON THE NORTH SHORE OF SUFFOLK COUNTY, NEW YORK.

NEW YORK OCEAN SCI. LAB. TECH, REPT. NO. 0028. 47 PP.

AERIAL PHOTOGRAPHS ARE USED TO STUDY THE EFFECTS OF SMALL GROINS ON SHORELINE CHANGES. THE STUDY INVOLVES 51 GROINS/LOCATED IN 14 AREAS ON THE NORTH SHORE OF SUFFOLK COUNTY, NEW YORK. COASTAL PROCESSES AND GROIN CHARACTERISTICS AFFECTING SHORELINE CHANGES ARE ALSO REVIEWED.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: GROIN, CR 7, LITTORAL PROCESSES, STABILIZE, EROSION

****
REF. NO.-0208

ORTOLANO, L. HILL, W.W. 1972.

AN ANALYSIS OF ENVIRONMENTAL STATEMENTS FOR CORPS OF ENGINEERS WATER PROJECTS.

STANFORD UNIVERSITY, CALIFORNIA. DEPARTMENT OF CIVIL ENGINEERING. 146 PP.

THE PUBLICATION PRESENTS THE RESULTS OF AN INTENSIVE ANALYSIS OF 234 CORPS OF ENGINEERS ENVIRONMENTAL IMPACT STATEMENTS PREPARED IN ACCORDANCE WITH SEC. 102 (2)(C) OF THE NATIONAL ENVIRONMENTAL POLICY ACT (NEPA). THE ANALYSIS INCLUDES A DETAILED CATALOG AND SUMMARY OF IMPACTS INCLUDED IN THE STATEMENTS FOR: PROJECTS ON COASTAL WATERS INCLUDING DREDGING, SPOIL DISPOSAL, BREAKWATERS, JETTIES AND GROINS, REVETMENTS, DIKES AND BARRIERS; AND PROJECTS ON INLAND WATERS INCLUDING CHANNELIZATION, DAMS AND RESERVOIRS, LEVEES, DREDGING SPOIL DISPOSAL, CONSTRUCTION AND OTHER MISCELLANEOUS STRUCTURES AND ACTIVITIES. IN ADDITION, THE ANALYSIS CATALOGS AND SUMMARIZES THE IMPACTS OF VARIOUS PROJECT PURPOSES. A SUMMARY OF THE COVERAGE OF OTHER POINTS REQUIRED BY SEC 102(2)(C) OF NEPA IS ALSO INCLUDED. THE PROPER ROLE OF ENVIRONMENTAL STATEMENTS IS SUGGESTED AND, WITHIN THAT CONTEXT, AN ASSESSMENT OF THE 134 STATEMENTS IS RENDERED, TOGETHER WITH SUGGESTIONS FOR IMPROVEMENT. (NTIS ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: DREDGE/FILL, BREAKWATER, JETTY, GROIN, REVETMENT, PROTECT, EROSION, SEDIMENTATION, BENTHOS

****
REF. NO.-0546

PAINTER, W.T. 1973.

PROBLEMS OF GREAT LAKES SHORE EROSION.

PP. 40-60 IN PROC. 1ST WORLD CONGR. ON WATER RESOUR. SEPT 24-28. VOL. 3. INT. WATER RESOUR. ASSOC., CHAMPAIGN, ILL.

REF. NO.-0546 (CONTINUED)

GUIDELINES FOR LAKESHORE STABILIZATION AND REVIEWS OF PERTINENT ASPECTS OF GEOLOGY, SOIL MECHANICS, GROUNDWATER FLOW, AND SLOPE STABILITY ANALYSIS WHICH ARE FUNDAMENTAL TO PLANNING REMEDIAL MEASURES. STABILIZATION PROCEDURES ARE DISCUSSED.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: CH 8. EROSION

****
REF. NO.-0308

PALLET, N. DOBBIE, C.H. 1969.

THE TERMINAL PROBLEM IN COAST PROTECTION.

PROC. 11TH CONF. COASTAL ENG. PP. 549-557.

THIS PAPER INTRODUCES THE TERMINAL EROSION PROBLEM WHICH USUALLY OCCURS DOWN DRIFT OF COAST PROTECTION WORKS, AN IMPORTANT ASPECT OF COAST PROTECTION WHICH IS OFTEN OVERLOOKED. TO PROVIDE THE BACKGROUND TO THIS PROBLEM, THE FORMATION, REPLENISHMENT AND FUNCTION OF A NATURAL SHINGLE BEACH IS DISCUSSED IN RELATION TO COAST PROTECTION. THE VALUE OF GROYNES IN STABILIZING THE FORESHORE, THE USE OF ARTIFICIAL BEACH REPLENISHMENT AND THE EFFECT ON THE LONG SHORE REGIME FOLLOWING THE INTRODUCTION OF A SEA WALL, ARE DISCUSSED IN OUTLINE WITH TYPICAL EXAMPLES. TERMINAL EROSION IS DESCRIBED IN MORE DETAIL, WITH REFERENCE TO ITS CAUSE, AND ILLUSTRATED BY EXAMPLES TAKEN AROUND THE COAST OF THE BRITISH ISLES. SUGGESTIONS ARE MADE FOR THE INVESTIGATION OF THE TERMINAL PROBLEM, DESIGN CONSIDERATIONS ARE DISCUSSED, AND TERMINAL GROYNES AND VARIOUS TYPES OF TERMINAL WORKS DESCRIBED. PARTICULAR REFERENCE IS MADE TO THE PERMEABLE TYPE OF TERMINAL SECTION. FINALLY THE PAPER IS ILLUSTRATED BY EXAMPLES OF TERMINAL WORKS WHICH HAVE BEEN CONSTRUCTED AT TWO SITES IN THIS COUNTRY. THE FORESHORE CONDITIONS AND EXPOSURE ARE DESCRIBED, TOGETHER WITH THE DETAILS OF THE SEA WALL AND GROYNES, AND THE DETAILS OF THE TERMINAL WORKS AT EACH SITE. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: GROIN, BULKHEAD, REVETMENT, PROTECT, LITTORAL PROCESSES, EROSION, REVETMENT

****
REF. NO.-0106

PARKER, R.O., JR. STONE, R.B. BUCHANAN, C.C. STEIMLE, F.W., JR. 1974.

HOW TO BUILD MARINE ARTIFICIAL REEFS.

FISHERY FACTS 10. NATL. MAR.FISH SERV. 47 PP.

ARTIFICIAL REEFS PROVIDE OR IMPROVE ROUGH BOTTOM HABITAT AND OFFER FISHERY SCIENTISTS AND

REF. NO.-0106 (CONTINUED)

ADMINISTRATORS AN EFFECTIVE TECHNIQUE TO CONSERVE AND DEVELOP COASTAL FISHERY RESOURCES. WITH CAREFUL PLANNING AND ORGANIZED EFFORTS, LOCAL REEF COMMITTEES CAN BUILD REEF TO IMPROVE FISHING AND CONTRIBUTE TO THE RECREATIONAL AND FINANCIAL GROWTH OF COASTAL COMMUNITIES. ADVICE AND PROCEDURES ARE PRESENTED FOR (1) SELECTING CONSTRUCTION MATERIALS, (2) DETERMINING A SUITABLE REEF SITE, (3) OBTAINING PERMITS, (4) BUOYING THE REEF, AND (5) PREPARING, TRANSPORTING , AND PLACING REEF BUILDING MATERIALS.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: REEF, HABITAT, FISH

****
REF. NO.-0284

PARR, R.A. 1973.

HARBOR DREDGING AND BENTHIC INFAUNA: A CASE STUDY.

UNPUBLISHED MS THESIS, OREGON STATE UNIVERSITY. 114 PP.

THIS STUDY OF THE IMMEDIATE, LOCALIZED EFFECTS OF A SMALL DREDGING OPERATION ON THE BENTHIC INVERTEBRATE COMMUNITY IN THE SHIPPING CHANNEL OF COOS BAY, OREGON, WAS DESIGNED (1) TO MEASURE THE EXTENT OF THE PHYSICAL REMOVAL OF BENTHIC MACRO- AND MEIOFAUNA BY HOPPER DREDGING; (2) TO RECORD THE SUBSEQUENT BENTHIC EFFECTS OF MID-CHANNEL SPOILING; AND (3) TO MONITOR THE RATE AND PATTERN OF BIOLOGICAL READJUSTMENT IN THE AFFECTED AREAS. SAMPLES WERE TAKEN BEFORE AND AFTER DREDGING. FAUNAL ABUNDANCE, TAXA COMPOSITION, SPECIES DIVERSITY AND QUALITATIVE SEDIMENT CHARACTERISTICS WERE STUDIED. IMMEDIATE DECLINES IN FAUNAL ABUNDANCE WERE TEMPORARY AND READJUSTED TO PRE-DREDGING LEVELS WITHIN 28 DAYS. TEMPORARY INCREASES IN DIVERSITY REFLECTED CHANGES IN THE RELATIVE ABUNDANCE OF TAXA ARISING FROM SILTATION AND BURIAL OF ORGANISMS. FOLLOWING READJUSTMENT, POPULATIONS INCREASED IN ALL AREAS EXCEPT THE DREDGE CHANNEL. LOCALIZED POPULATION DECLINES ARE HYPOTHESIZED TO RESULT FROM THE UNSUITABILITY OF NEWLY EXPOSED SEDIMENT FOR SETTLEMENT OF PELAGIC LARVAE. IT IS ALSO HYPOTHESIZED THAT PERIODIC DISRUPTION OF THE SEDIMENT SURFACE BY SMALL SCALE MAINTENANCE DREDGING MAY HAVE LESS DIRECT EFFECT ON THE BENTHIC COMMUNITY THAN THE DAILY PRESENCE OF HEAVY SHIPPING AND INDUSTRIAL AND DOMESTIC POLLUTION.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: THESIS

DESCRIPTORS: BENTHOS, CR 1, INVERTEBRATES, DREDGE/FILL, SEDIMENTATION

****
REF. NO.-0088

PARSONS, D.A. APMANN, R.P. 1965.

CELLULAR CONCRETE BLOCK REVETMENT.

J. WATERWAYS AND HARBOR DIVISION. PROC. A.S.C.E. 91(WW2):27-37.

REF. NO.-0088 (CONTINUED)

AN EXPERIMENTAL REVETMENT OF SPECIALLY DESIGNED CELLULAR CONCRETE REVETMENT BLOCKS WAS CONSTRUCTED ON AN ERODING STREAMBANK IN WESTERN NEW YORK. OVER A PERIOD OF 8 YR THE 4-IN. THICK REVETMENT HAS GIVEN SATISFACTORY PERFORMANCE UNDER SEVERE CONDITIONS. IN CONTRAST, AN ADJACENT REVETMENT OF QUARRIED STONE RIPRAP HAS BEEN LESS EFFECTIVE IN WITHSTANDING THE EROSIVE FORCES. SQUARE HOLES RUN ENTIRELY THROUGH THE DEPTH OF THE BLOCK. THESE HOLES SERVE SEVERAL PURPOSES: (1) THEY MECHANICALLY HOLD GRAVEL AND CRUSHED STONE IN PLACE, THUS REDUCING THE EROSIVE FORCES AT THE SURFACE OF THE BANK; (2) ALLOW PLANTING OF VEGETATIVE MATERIALS ON THE BANK; AND (3) REDUCE THE BLOCK WEIGHT MAKING HANDLING EASIER. WHEN THE BLOCKS ARE MASS-PRODUCED AND WHERE QUARRIED STONE IS AVAILABLE LOCALLY, THE COSTS OF THE TYPES OF REVETMENTS WOULD BE APPROXIMATELY THE SAME.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUR

DESCRIPTORS: REVETMENT, CR 7, STABILIZE, EROSION

****
REF. NO.-0178

PERAINO, J. PLODOWSKI, T. 1975.

CONCEPT ANALYSIS: OFFSHORE BREAKWATER-OIL STORAGE SYSTEM.

U.S. ARMY CORPS OF ENGINEERS. CERC MISC. PAPER NO. 4-75. 66 PP.

THIS STUDY ATTEMPTS TO ARRIVE AT A SATISFACTORY METHOD OF PROVIDING A PROMPT AND EFFICIENT ANSWER TO THE FAST GROWING NEED FOR DEEP-DRAFT BERTHING FACILITIES ALONG THE U.S. EAST COAST. THE GENERAL CONCEPT OF LARGE HOLLOW PRECAST FLOATING UNITS TOWED TO THE SITE AND SUNK INTO POSITION LENDS ITSELF PARTICULARLY TO USING HOLLOW INTERIORS AS STORAGE SPACE FOR LIQUID BULK CARGO IN LARGE QUANTITIES. SINCE THE TREND FOR MORE ECONOMICAL TRANSPORTATION OF PETROLEUM PRODUCTS IS BY USE OF LARGE DEEP-DRAFT CARRIERS, THE COMBINATION BREAKWATER-OIL STORAGE SYSTEM IS A POSSIBLE SOLUTION. ASSUMPTIONS WERE MADE AS TO PROBABLE SITE CONDITIONS, I.E. WATER DEPTHS, SEA CONDITIONS, BOTTOM CONDITIONS, AND A PRELIMINARY DESIGN DEVELOPED FOR THE UNITS. VARIOUS CONSTRUCTION PROCEDURES WERE STUDIED AND COMPARED FROM BOTH TECHNICAL AND CONSTRUCTION COST ASPECTS. ONCE ALL TECHNICAL ADVANTAGES AND DISADVANTAGES HAD BEEN CONSIDERED, THE MOST SUITABLE DESIGN WAS COMPLETED, A CONSTRUCTION PROCEDURE LAID OUT, AND A BASIC BUDGET ESTIMATE PREPARED. WITH THIS BASIC ESTIMATE, IT WAS POSSIBLE, WITH A SERIES OF FACTORS, TO ADJUST THIS BASIC COST TO OTHER WATER DEPTHS AND LOCATIONS. DESIGN PRINCIPLES, CONSTRUCTION PROCEDURES AND COST ESTIMATES ARE DETAILED IN THE REPORT, INCLUDING BASIC ASSUMPTIONS, SAMPLE DESIGN CALCULATIONS, AND ESTIMATE BREAKDOWN. (NTIS ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUR

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0369

PERSAUD, D. WILKINS, W.D. 1976.

EVALUATING CONSTRUCTION ACTIVITIES IMPACTING ON WATER RESOURCES.

CANADA MINISTRY OF THE ENVIRONMENT. PLANNING AND CO-ORDINATION SECTION, WATER RESOURCES BRANCH. PAGING VARIOUS.

THIS DOCUMENT OUTLINES POTENTIAL WATER RESOURCE IMPACTS AND SUGGESTS APPROPRIATE MITIGATION MEASURES. IT IS INTENDED FOR USE BY EVALUATORS OF APPLICATIONS FOR PERMITS FOR ACTIVITIES WHICH AFFECT WATER RESOURCES IN CANADA. VARIOUS CONSTRUCTION ACTIVITIES ARE ADDRESSED AND POSSIBLE PROBLEMS AND MITIGATION APPROACHES ARE EXAMINED. THE APPENDICES INCLUDE A CHECKLIST OF INFORMATION REQUIRED FOR ASSESSMENT OF WATER RESOURCE IMPACTS AND A LIST OF POSSIBLE SOURCES OF INFORMATION.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: GOV REP

DESCRIPTORS: GROIN, JETTY, BREAKWATER

****
REF. NO.-0220

PETERSON, A.R. 1969.

ECOLOGICAL CHANGES IN CLEARWATER LAKE, WRIGHT AND STEARNS COUNTIES.

MINN. DEPT. CONSERV., DIV. GAME AND FISH, SEC. OF TECH. SERV. SPEC. PUB. NO. 76. 13 PP.

THE HISTORY OF CLEARWATER LAKE IN WRIGHT AND STEARNS COUNTIES, MINNESOTA IS REVIEWED. IN 1856, THE LAKE WAS NOT INHABITED AND THE LAND ADJACENT TO THE LAKE WAS FORESTED. SINCE THEN TO 1946, NINE RESORTS AND 217 COTTAGES HAD BEEN BUILT ON THE LAKE SHORE AND THE WATER QUALITY HAD DETERIORATED. A 1962 SURVEY SHOWED 8 RESORTS, 73 CABINS, AND 295 HOMES ALONG THE SHORELINE.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0386

PETERSON, A.R. 1975.

SHORELINE MODIFICATIONS BY WIND AND ASSOCIATED WATER LEVELS AND THEIR SIGNIFICANCE TO FISH AND PLANT MANAGEMENT IN MISSISSIPPI HEADWATERS RESERVOIRS, LEECH AND WINNIBIGOSHISH LAKES.

MINN. DEPT. NAT. RES. DIV. FISH AND WILDL., ENVIRON. SEC., SPEC. PUB. NO. 112. 24 PP.

HIGH WATFR IN LEECH AND WINNIBIGOSHISH LAKES IN 1967 WAS REPORTED TO BE CAUSING NOTICEABLE AND

REF. NO.-0386 (CONTINUED)

UNDESIRABLE EFFECTS ON PROPERTY, FISH, AND AQUATIC PLANTS. TO ASSESS THE IMPORTANCE OF THE REPORTED PROBLEMS, ESPECIALLY THE FISH AND GAME ASPECTS, AT THE HIGH WATER LEVELS, A SURVEY WAS CONDUCTED IN THE AREAS. A DESCRIPTION OF THE RESERVOIRS; WATER MOVEMENTS AND THEIR EFFECTS; FISH, PLANKTON, BENTHIC COMMUNITY DESCRIPTIONS; AND ANALYSIS OF THE COLLECTED INFORMATION ARE PRESENTED.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0463

PFITZENMEYER, H.T. 1977.

THE EFFECTS OF SHALLOW-WATER CHANNEL DREDGING ON THE COMMUNITY OF BENTHIC ANIMALS AND PLANTS: PHASE II. A STUDY OF IMMEDIATE EFFECTS AND RATES OF RECOVERY.

UNIV. MARYLAND CENTER FOR ENVIRON. AND ESTUARINE STUDIES SALOMONS,MD. REF. NO. UMCEES 76-23CBL. 10 PP.

THIS PAPER IS AN ACTIVITIES REPORT ON THE FIRST HALF OF AN ONGOING PROJECT TO ASSESS THE EFFECTS OF DREDGING IN SHALLOW-WATER TRIBUTARIES OF CHESAPEAKE BAY. IT OUTLINES THE ESTABLISHMENT OF SAMPLING STATIONS AND THE TAKING OF INITIAL SAMPLES AT TWO SITES, HORN POINT AND LEWIS CREEK. ANALYSIS OF SEDIMENT SAMPLES AND ORGANIC CARBON SAMPLES OBTAINED ARE PRESENTED IN TABULAR FORM. A LIST OF SPECIES OF BENTHIC INVERTEBRATES FOUND AT THE TWO STUDY SITES IS ALSO INCLUDED. NO CONCLUSIONS ARE DRAWN, SINCE THE STUDY IS STILL IN PROGRESS.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: UNPUB

DESCRIPTORS: CR 6, DREDGE/FILL, BENTHOS

****
REF. NO.-0465

PFITZENMEYER, H.T. 1975.

THE EFFECTS OF SHALLOW-WATER CHANNEL DREDGING ON THE COMMUNITY OF BENTHIC ANIMALS AND PLANTS: PHASE I. SURVEY OF PREVIOUSLY DREDGED AREAS AND OBSERVATIONS ON THE PHYSICAL AND BIOLOGICAL EFFECTS.

UNIV. MARYLAND CENTER FOR ENVIRON. AND ESTUARINE STUDIES, SALOMONS, MD. REF. NO. 75-69. 34 PP.

THE REPORTED STUDY WAS DESIGNED AS A PRELIMINARY INVESTIGATION INTO THE EFFECTS OF SHALLOW-WATER CHANNEL DREDGING ON THE COMMUNITY OF BENTHIC ANIMALS AND PLANTS. THE OBJECTIVE OF THIS PHASE WAS TO DETERMINE THROUGH QUANTITIVE MEANS IF DIFFERENCES IN THE BIOTA COULD BE MEASURED BETWEEN CHANNELS AND CORRESPONDING REFERENCE AREAS. PHYSICAL QUALITIES OF THE SEDIMENTS AT EACH SAMPLING STATION WERE ALSO ANALYZED. NO MAJOR DAMAGE WAS FOUND TO THE

REF. NO.-0465 (CONTINUED)

POPULATIONS OF BENTHIC INVERTEBRATES IN CHANNELS 2 TO 4 YEARS AFTER DREDGING, THOUGH NO ROOTED VEGETATION WAS FOUND IN DREDGED AREAS. ADDITIONAL STUDIES ARE NEEDED IN DIFFERENT AREAS AND WITH DIFFERENT DREDGING DEPTHS AND PROJECT DESIGNS. ALSO EARLY BENTHIC SUCCESSION FOLLOWING DREDGING REQUIRES FURTHER STUDY.

NATURE OF REFFRENCE: GENERAL

TYPE OF REFERENCE: UNPUB

DESCRIPTORS: DREDGE/FILL, BENTHOS, CR 6, RESEARCH NEEDS

****
REF. NO.-0282

PISAPIA, R.C. UNDATED.

BIOLOGICAL IMPLICATIONS OF DREDGE HOLES.

U.S. FISH AND WILDLIFE SERVICE, DRBS, ANNAPOLIS MD. (MIMEO.).

PAPER DISCUSSES THE ENVIRONMENTS IN HOLES RESULTING FROM DREDGING ACTIVITIES. HOLES SIGNIFICANTLY DEEPER THAN THE SURROUNDING BOTTOM CAN BECOME TRAPS FOR SEDIMENTS ORGANIC MATERIALS, AND POLLUTANTS. A NUMBER OF EXAMPLES ARE CITED TO DEMONSTRATE THE TYPES OF ACCUMULATIONS IN DREDGE HOLES AND THEIR ADVERSE BIOLOGICAL IMPACTS. RECOMMENDATIONS TO REDUCE THE IMPACTS OF DREDGE HOLES ARE PROVIDED.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: UNPUB

DESCRIPTORS: HABITAT, DREDGE/FILL

****
REF. NO.-0363

PLOESSEL, M.R. 1973.

ENGINEERING GEOLOGY ALONG THE SOUTHERN CALIFORNIA COASTLINE.

PP. 365-366 IN: D.E. MORAN, J.E. SLASSEN, R.O. STONE, AND C.A. YELVERTON (EDS.) GEOLOGY, SEISMICITY, AND ENVIRONMENTAL IMPACT. UNIVERSITY PUBLISHERS, LOS ANGELES.

SEA CLIFFS AND BEACHES IN SOUTHERN CALIFORNIA ARE UNSTABLE AND CONSTANTLY CHANGING. THE RATE OF SEA CLIFF RETREAT IS VARIABLE IN SOUTHERN CALIFORNIA. MEASURES WHICH CAN RETARD CLIFF RETREAT INCLUDE WIDENING AND RAISING BEACHES AT THE BASE OF THE CLIFF, AND CONSTRUCTION OF REVETMENTS OR SEAWALLS. ANOTHER OPTION IS TO ALLOW NORMAL CLIFF RETREAT AND PROVIDE FOR A NON-STRUCTURAL SETBACK AREA AT THE TOP OF THE CLIFF. ANY STRUCTURE WHICH IS AN OBSTRUCTION TO LITTORAL DRIFT WILL CAUSE BEACH ACCRETION UPDRIFT AND EROSION DOWNDRIFT OF THE STRUCTURE. IN CALIFORNIA SUCH STRUCTURES INCREASE CLIFF RETREAT BY ERODING BEACHES AT THE BASE OF CLIFFS. ENDANGER OTHER STRUCTURES ON ERODING DOWNDRIFT BEACHES. ACCUMULATING SAND AROUND SOME STRUCTURES TENDS TO BLOCK HARBOR ENTRANCES. ARTIFICIAL TRANSPORT OF SAND AROUND OBSTRUCTING

REF. NO.-0363 (CONTINUED)

STRUCTURES IS THE ONLY SOLUTION TO THESE EROSION PROBLEMS. IN ADDITION ARTIFICIAL BEACH NOURISHMENT MAY BECOME A NECESSITY IN THE FUTURE AS CALIFORNIA BEACHES HAVE BEEN ROBBED OF THEIR PRIMARY SOURCE OF SAND WITH MAN'S ELIMINATION OF FLOODING OF MAJOR RIVERS.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUR

DESCRIPTORS: LITTORAL PROCESSES, EROSION, REVETMENT, BULKHEAD, CR 2

****
REF. NO.-0099

POWER, G. 1975.

WATERGATE VILLAGE: A CASE STUDY OF A PERMIT APPLICATION FOR A MARINA SUBMITTED TO THE U.S. ARMY CORPS OF ENGINEERS.

J. COASTAL ZONE MGMT. 2(2): 103-123.

THIS CASE STUDY, PREPARED BY AN INTERDISCIPLINARY GROUP OF SEVERAL SCIENTISTS AND PLANNERS AND A LAWYER, REVIEWS THE HANDLING BY THE DECISION PROCESS OF AN APPLICATION TO THE BALTIMORE DISTRICT CORPS OF ENGINEERS FOR PERMISSION TO CONSTRUCT A MARINA. THE STUDY DETERMINES THAT WHILE THE PROJECT IN QUESTION MAY NOT PRESENT A SIGNIFICANT ENVIRONMENTAL THREAT, THE PROJECT WHEN CONSIDERED IN CONJUNCTION WITH OTHER PENDING PROJECTS ON THE SAME SUBTRIBUTARY WOULD CONTRIBUTE TO BOAT CONGESTION AND DEGRADATION OF WATER QUALITY. CHANGES IN THE DECISION PROCESS ARE SUGGESTED WHICH WOULD FACILITATE CONSIDERATION OF THE CUMULATIVE IMPACTS FROM A SERIES OF COASTAL ALTERATIONS. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUR

DESCRIPTORS: MOORING, CUMULATIVE EFFECTS, SEDIMENTATION, LEGAL, HARBOR, CR 6, DREDGE/FILL

****
REF. NO.-0028

PRICE, W.A. TOMLINSON, K.W. 1970.

THE EFFECT OF GROYNES ON ERODED BEACHES.

PROC. 12TH COASTAL ENG. CONF. PP. 1053-1058.

LABORATORY TESTS ARE DESCRIBED, IN WHICH THE EFFECT OF IMPERMEABLE GROINS ON AN ERODED BEACH WAS STUDIED. A BEACH WAS ALLOWED TO REACH EQUILIBRIUM FOR A PARTICULAR WAVE CLIMATE AND SUPPLY OF LITTORAL MATERIAL. THE FORESHORE WAS THEN MANUALLY ERODED, AND THE BEACH ALLOWED TO RETURN TO EQUILIBRIUM WITH AND WITHOUT GROINS. IT WAS FOUND THAT THE PRESENCE OF GROINS INCREASED THE RATE OF ACCRETION BUT DID NOT SIGNIFICANTLY BUILD UP THE INSHORE BEACH BEYOND THE STABLE LEVELS. BED LEVELS SEAWARD OF THE GROINS WERE INCREASED. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: GENERAL

REF. NO.-0028 (CONTINUED)

TYPE OF REFERENCE: PUB

DESCRIPTORS: GROIN, EROSION, STABILIZE, SEDIMENTATION, LITTORAL PROCESSES

****
REF. NO.-0205

PRICE, W.A. TOMLINSON, K.W. 1969.

THE EFFECT OF GROYNES ON STABLE BEACHES.

PROC. 11TH COASTAL ENG. CONF. AMER. SOC. CIVIL ENGINEERS. COASTAL ENGINEERING RESEARCH COUNCIL, PP. 518-525.

THE PAPER DESCRIBES TESTS CARRIED OUT IN A WAVE BASIN TO STUDY THE EFFECT OF GROYNES ON A BEACH THAT WAS STABLE FOR A PARTICULAR WAVE CLIMATE AND A GIVEN SUPPLY OF LITTORAL MATERIAL. THE MAIN CONCLUSION WAS THAT ON THE PART OF THE BEACH BETWEEN HW AND LW LEVEL THE GROYNES PRODUCED NO BUILD UP. THE ONLY BUILD-UP THAT OCCURRED TOOK PLACE SEAWARD OF THE IMPERMEABLE GROYNES. PERMEABLE GROYNES HAD LITTLE EFFECT EITHER INSHORE OR OFFSHORE. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: GROIN, LITTORAL PROCESSES

****
REF. NO.-0242

PRICE, W.A. 1954.

SHORELINES AND COASTS OF THE GULF OF MEXICO.

U.S. FISH AND WILDLIFESERVICE, FISHERY BULLETIN 89. 55:39-65.

A STRUCTURAL AND REGIONAL GEO-OCEANOGRAPHIC APPROACH TO SHORELINE DESCRIPTION AND CLASSIFICATION FOR THE GULF OF MEXICO IS PRESENTED. THE RESEARCH ON WHICH THE PAPER IS PRIMARILY BASED WAS A COMPREHENSIVE SURVEY OF THE SHORELINES OF THE GULF FROM EXISTING DATA, INCLUDING RESULTS OF THE WRITER'S 20-YEAR STUDY OF THE NORTHWESTERN GULF COAST. THE SURVEY WAS MADE BY THE WRITER IN 1951-1953.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0201

P., W.M. 1969.

REF. NO.-0201 (CONTINUED)

WHAT DO THEY MEAN...'MEAN HIGH WATER BULKHEAD?'.

THE FLORIDA NATURALIST. JULY. 1 P.

SIMPLE SKETCHES WERE DRAWN TO PROMOTE PUBLIC UNDERSTANDING OF SOME CONCEPTS AND TERMS RELATING TO THE MANATEE COUNTY-TERRA VIDA BULKHEAD PROPOSAL. THREE POSSIBLE ALTERNATIVES WERE CONSIDERED. THE BEST ALTERNATIVE HAD VEGETATION OR A 'VEGETATIVE LINE' AT THE MEAN HIGH WATER LINE AND WAS THE NATURAL SITUATION. THE NEXT BEST ALTERNATIVE HAD A BULKHEAD SET AT THE MEAN HIGH WATER LINE WITH GRASSES AND MANGROVES ON THE BAYWARD SIDE AND NO DREDGING FOR FILL PURPOSES. THE WORST ALTERNATIVE HAD THE BULKHEAD SET BAYWARD OF THE MEAN HIGH WATER LINE AND SUBMERGED LAND DREDGED UP FOR FILL PURPOSES. WHEN BULKHEADS ARE SET BAYWARD OF THE MEAN HIGH WATER LINE, NO GRASSES, MANGROVES, ETC. SURVIVE AND A 'WET BIOLOGICAL DESERT' RESULTS.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: BULKHEAD, CR 4

****
REF. NO.-0090

QUINN, A.D. 1972.

DESIGN AND CONSTRUCTION OF PORTS AND MARINE STRUCTURES (2ND ED).

MC GRAW-HILL BOOK COMPANY, NEW YORK. 611 PP.

THIS BOOK IS A TECHNICAL DESIGN MANUAL FOR ENGINEERS INVOLVED IN DESIGN AND CONSTRUCTION OF PORTS AND MARINE STRUCTURES. MUCH OF THE CONTENTS ARE CONCERNED WITH THE PHYSICS OF THE MARINE ENVIRONMENT AND HOW TO DESIGN WITHIN THE PHYSICAL STRESSES IMPOSED.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0333

RAYNOR, A.C. RECTOR, R.L. 1961.

GROINS ON THE SHORES OF THE GREAT LAKES.

J. WATERWAYS AND HARBORS DIVISION, ASCE 87(WW4):137.

AUTHORS DISCUSS THE LACK OF EFFECTIVENESS OF GROIN SYSTEMS IN THE GREAT LAKES. IN GENERAL, GROINS ARE SECCESSFUL ONLY WHERE THE LONGSHORE MOVEMENT OF LITTORAL DRIFT IS REASONABLY PLENTIFUL. THE NATURAL CONDITION ALONG MUCH OF THE GREAT LAKES SHORELINE IS JUST THE OPPOSITE. PERMEABLE GROINS OR SHORT GROIN SYSTEMS ARE NOT FEASIBLE.

REF. NO.-0333 (CONTINUED)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUR

DESCRIPTORS: GROIN, CR 8, PROTECT, LITTORAL PROCESSES

****
REF. NO.-0089

RAY, G.C. NORRIS, K.S. 1972.

MANAGING MARINE ENVIRONMENTS.

TRANS. 37TH N. AMER. WILDL. NAT. RES.CONF. PP. 190-203.

THE WORLD OCEANS ARE EXPLOITED BY HUNTING AND GATHERING, AND PELAGIC WATERS ARE NOT THE PROPERTY OF ANY SINGLE NATION. THERE IS SEVERE COMPETITION FOR OCEAN RESOURCES BUT A RECENT TREND IS TOWARD INTERNATIONAL MANAGEMENT OF MARINE RESOURCES. ONE PROBLEM IS THAT OF A LACK OF UNDERSTANDING OF THE PRINCIPLES OF ECOSYSTEM MANAGEMENT. THE BASIC DETERMINANTS OF MANAGEMENT STRATEGY MUST THEREFORE LIE WITH THOSE WHO UNDERSTAND MARINE ECOSYSTEMS.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUR

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0239

REED, R. 1976.

ENGINEERS BUILD MARSH ON MISSISSIPPI.

WATER SPECTRUM 8(2):36-37.

AN ACCOUNT IS GIVEN OF THE SUCCESSFUL EXPERIENCE OF THE CORPS OF ENGINEERS FROM THE NEW ORLEANS DISTRICT TO CONVERT DREDGED MATERIAL INTO A SERIES OF NEW MARSHLANDS ALONG THE SOUTHWEST PASS OF LOUISIANA'S MISSISSIPPI RIVER DELTA. THIS IS A RELATIVELY NEW APPROACH TO SOLVING THE PROBLEM OF DISPOSING DREDGED MATERIAL AND AIDING LOUISIANA'S DISAPPEARING COASTAL WETLANDS.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUR

DESCRIPTORS: DREDGE/FILL, CR 3

****
REF. NO.-0313

REID, G.K. 1956.

ECOLOGICAL INVESTIGATIONS IN A DISTURBED TEXAS COASTAL ESTUARY.

TEXAS J. SCI. 8(3):296-327.

IN 1955 ROLLOVER PASS WAS CUT THROUGH A PENNINSULA TO OPEN EAST GALVESTON BAY TO THE GULF. GULF WATERS OF HIGH SALINITY WERE INTRODUCED INTO THE UPPER PORTION OF THE EAST BAY. THE STUDY DESCRIBED WAS CONCERNED WITH CHANGES IN THE PHYSICAL, CHEMICAL, AND BIOLOGICAL CHARACTERISTICS OF THE BAY FOLLOWING EXCAVATION OF THE PASS. A NEARLY TWO-FOLD INCREASE IN SALINITY OCCURRED FROM 1954 TO 1955 IN THE UPPER BAY AREA. THE NUMBER OF FISH SPECIES WAS NEARLY THE SAME IN 1955 AS IN 1954 BUT SPECIES COMPOSITION WAS ALTERED, WITH MORE SPECIES TOLERANT OF SALINE CONDITIONS PRESENT. CHANGES ALSO OCCURRED IN RELATIVE NUMBERS OF THREE SPECIES OF SHRIMP.

NATURE OF REFFRENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: CR 3, FISH, SHELLFISH

****
REF. NO.-0118

REIMBERT, M.L. REIMBERT, A.M. 1974.

RETAINING WALLS, ANCHORAGES AND SHEET PILINGS (VOL. I).

TRANS TECH PUBLISHERS, BAY VILLAGE, OHIO. 284 PP.

A TECHNICAL TREATMENT OF THE STRESSES UPON MARINE STRUCTURES. DESIGN CRITERIA AND MATERIALS STRENGTHS ARE DISCUSSED WITH PARTICULAR EMPHASIS ON THE PHYSICAL FORCES OF THE COASTAL AREA.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0012

REISH, D.J. 1963.

FURTHER STUDIES ON THE BENTHIC FAUNA IN A RECENTLY CONSTRUCTED BOAT HARBOR IN SOUTHERN CALIFORNIA.

BULL. SO. CALIF. ACAD. SCI. 62(1): 23-32.

A PERIODIC, QUANTITATIVE STUDY WAS MADE IN A NEWLY DREDGED BOAT CHANNEL TO DETERMINE WHETHER OR NOT SUCCESSION OCCURS IN THE SUBTIDAL BENTHIC ENVIRONMENT. THERE WAS NO INDICATION THAT THE SETTLEMENT OF AN EARLIER ASSEMBLAGE OF ANIMALS WAS NECESSARY FOR THE SETTLEMENT OF A SUBSEQUENT ONE. VARIATIONS IN THE POPULATION WERE NOTED. THE PRINCIPAL SPECIES WERE GROUPED

REF. NO.-0012 (CONTINUED)

ACCORDING TO: (1) THOSE THAT REACHED A PEAK IN NUMBER OF SPECIMENS THEN DECREASED, (2) THOSE THAT SHOWED FLUCTUATIONS, POSSIBLY SEASONAL., (3) THOSE THAT REACHED A PLATEAU, AND (4) THOSE THAT APPARENTLY ARE STILL INCREASING IN NUMBERS OF SPECIMENS PRESENT. THE RELATIONSHIP BETWEEN THE AMOUNT OF WATER CIRCULATION AND ITS EFFECT UPON BENTHIC ANIMALS IN BOAT BASINS AND CHANNELS WAS DISCUSSED

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: BENTHOS, HARBOR, SUCCESSION, CR 2

****
REF. NO.-0083

REISH, D.J. 1962.

A STUDY OF SUCCESSION IN RECENTLY CONSTRUCTED MARINE HARBORS IN SOUTHERN CALIFORNIA.

PROC. FIRST NAT'L COASTAL AND SHALLOW WATER RES. CONF. BALTIMORE, L.A. AND TALLAHASSEE. PP. 570-573.

FOUR SMALL BOAT HARBORS HAVE BEEN OR ARE IN THE PROCESS OF BEING CONSTRUCTED IN SOUTHERN CALIFORNIA., THESE ARE LOCATED IN LONG BEACH (ALAMITOS BAY), LOS ANGELES (PLAYA DEL RAY), AND TWO IN VENTURA COUNTY. THESE HARBORS WERE DREDGED FROM LAND AND OFFER OPPORTUNITY TO STUDY MARINE SUCCESSION. EMPHASIS WAS PLACED ON BENTHIC ORGANISM AND FOULING ORGANISMS IN ALAMITOS BAY AND ON THE INTERTIDAL ORGANISMS OF THE ROCK JETTIES OF PLAYA DEL RAY AND VENTURA COUNTY. SYSTEMATIC RESEARCH WAS CONDUCTED AT SELECTED SAMPLING SITES, AND THE VARIOUS SPECIES IDENTIFIED. SUCCESSION WAS FOUND TO OCCUR WHERE SOLID SUBSTRATE OFFERS A SITE OF ATTACHMENT. LITTLE OR NO SUCCESSION WAS OBSERVED IN SEDIMENTS. SOLID SUBSTRATE CLIMAX COMMUNITIES WERE ESTABLISHED MORE RAPIDLY THAN HAS BEEN OBSERVED IN OTHER GEOGRAPHICAL AREAS. THIS IS BELIEVED TO BE INFLUENCED BY THE WARMER WATER TEMPERATURE AND LONG BREEDING SEASON.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: HARBOR, SUCCESSION, CR 2

****
REF. NO.-0280

REISH, D.J. 1961.

A STUDY OF BENTHIC FAUNA IN A RECENTLY CONSTRUCTED BOAT HARBOR IN SOUTHERN CALIFORNIA.

ECOLOGY 42(1):84-91.

A PERIODIC QUANTITATIVE STUDY WAS MADE IN A NEWLY DREDGED MARINE BOAT HARBOR TO DETERMINE IF THE SUBTIDAL BENTHIC FAUNAL SUCCESSION OCCURRED ON THE BOTTOM. POLYCHAETES, MOLLUSKS, CRUSTACEANS AND NEMERTEANS WERE THE IMPORTANT GROUPS COLLECTED. A PEAK IN THE NUMBER OF SPECIES AND SPECIMENS WAS RECORDED ABOUT TWO YEARS AFTER SEAWATER WAS FIRST LET IN. THE

REF. NO.-0280 (CONTINUED)

POPULATION DECREASED MARKEDLY IN THE FOLLOWING YEAR. VARIOUS EXPLANATIONS FOR THE REDUCTION IN NUMBER OF SPECIES AND SPECIMENS ARE OFFERED. THERE WAS NO EVIDENCE OF SUCCESSION.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUR

DESCRIPTORS: HARBOR, BENTHOS, SUCCESSION, SUBSTRATE, CR 1

****
REF. NO.-0290

REISH, D.J. 1964.

DISCUSSION OF THE MYTILUS CALIFORNIANUS COMMUNITY ON NEWLY CONSTRUCTED ROCK JETTIES IN SOUTHERN CALIFORNIA.

VELIGER. 7(2):95-101.

IN A STUDY OF THE GROWTH AND DEVELOPMENT OF THE MYTILUS CALIFORNIANUS COMMUNITY ON ROCK JETTIES, NEWLY CONSTRUCTED IN VENTURA COUNTY AND PLAYA DEL REY MARINAS, DATA COLLECTED PERIODICALLY OVER A TWO-YEAR PERIOD INDICATED THAT ULVA DACTYLIFERA WAS THE EARLIEST MACROSCOPIC INHABITANT REGARDLESS OF WHAT TIME OF YEAR THE AREA WAS INITIALLY EXPOSED TO SEA WATER. MYTILUS CALIFORNIANUS SETTLED ON THE ROCKS DURING THE SPRING MONTHS. THE LARGER, MORE DIVERSE POPULATIONS WERE ENCOUNTERED DURING THE SUMMER MONTHS AND SMALLER, LESS DIVERSE POPULATIONS OBSERVED DURING THE WINTER MONTHS. THE POPULATION OF MYTILUS CALIFORNIANUS DISAPPEARED AT VENTURA COUNTY MARINA AFTER TWO YEARS, BUT NOT AT PLAYA DEL REY MARINA. NO EXPLANATION IS ADVANCED AT THIS TIME FOR THIS DIFFERENCE.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUR

DESCRIPTORS: JETTY, SUCCESSION, CR 2, HARBOR, STABILIZE, SHELLFISH, HABITAT, AQUATIC PLANTS

****
REF. NO.-0325

REISH, D.J. 1969.

DISCUSSION OF THE MYTILUS CALIFORNIANUS COMMUNITY ON NEWLY CONSTRUCTED ROCK JETTIES IN SOUTHERN CALIFORNIA (MOLLUSCA:BIVALVIA).

THE VELIGER 7(2):95-101.

THE GROWTH AND DEVELOPMENT OF THE CALIFORNIA SEA MUSSEL, MYTILUS CALIFORNIANUS, COMMUNITY ON NEWLY CONSTRUCTED ROCK JETTIES WAS STUDIED IN VENTURA AND PLAYA DEL REY MARINAS. ORGANISMS WERE COLLECTED PERIODICALLY OVER A TWO-YEAR PERIOD FROM THREE SITES ON THE INSIDE OF THE SOUTH JETTY OF THE VENTURA COUNTY MARINA AND FROM ONE SITE AT PLAYA DEL REY. DATA COLLECTED INDICATED THAT GREEN ALGA (ULVA DACTYLIFERA) WAS THE EARLIEST MACROSCOPIC INHABITANT, REGARDLESS OF THE TIME OF YEAR THE ROCKS WERE INITIALLY EXPOSED TO SEA WATER. MYTILUS

REF. NO.-0325 (CONTINUED)

CALIFORNIANUS SETTLED ON THE ROCKS DURING THE SPRING MONTHS. THE NUMBER OF SPECIMENS AND SPECIES OF PLANTS AND ANIMALS ASSOCIATED WITH THE POPULATION OF MYTILUS CALIFORNIANUS WAS LARGER AND MORE DIVERSE DURING THE SUMMER MONTHS AND SMALLER AND LESS DIVERSE DURING THE WINTER MONTHS. THE POPULATION OF MYTILUS CALIFORNIANUS DISAPPEARED FROM THE INSIDE OF THE SOUTH JETTY AT VENTURA COUNTY MARINA AFTER TWO YEARS BUT WAS STILL PRESENT AT THE END OF THE JETTY AND ALL ALONG THE OUTER SIDE. NO SPECIMENS OF M. CALIFORNIANUS WERE EVER OBSERVED ON THE NORTH JETTY; HOWEVER THIS WAS ASCRIBED TO THE PRESENCE OF A SANDY BEACH ALONG THE OCEAN SIDE OF THE JETTY WHICH CREATED AN UNSUITABLE HABITAT FOR THE MUSSEL. AFTER TWO YEARS, A POPULATION OF M. CALIFORNIANUS WAS STILL PRESENT ON THE JETTIES AT PLAYA DEL REY MARINA NO EXPLANATION WAS ADVANCED FOR THE DIFFERENCE IN POPULATION OF M. CALIFORNIANUS AT THE TWO MARINAS.

NATURE OF REFFRENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: SHELLFISH, CR 2, JETTY, HABITAT, SUCCESSION, AQUATIC PLANTS

****
REF. NO.-0104

RHODE ISLAND STATEWIDE PLANNING PROGRAM. 1972.

PROTECTION AND CONTROL OF THE SALT WATER SHORE AREA.

TECHNICAL PAPER NO. 21. 44 PP.

THE PAPER EXPLORES A POSSIBLE APPROACH TO THE PROTECTION AND REGULATION OF RHODE ISLAND'S IMMEDIATE SALT WATER SHORELINE. THE PAPER POINTS OUT THE CRITICAL NATURE OF THIS AREA, DISCUSSES PUBLIC AND PRIVATE INTERESTS IN THE SHORE AREA, DESCRIBES PAST EFFORTS TO DELINEATE A 'CRITICAL AREA' ALONG THE SHORE, AND OFFERS RECOMMENDATIONS FOR PROTECTION AND REGULATION. THE APPENDIX CONTAINS SUGGESTED LEGISLATION OF TWO TYPES: ONE TO IMPROVE PROTECTION OF COASTAL WETLANDS, AND ONE TO REGULATE THE ENTIRE IMMEDIATE SHORELINE AREA. (NTIS ABSTRACT)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: UNPUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0162

RICHEY, E.P. 1971.

HYDRO-ECOLOGICAL PROBLEMS OF MARINAS IN PUGET SOUND.

PROC. FIRST TECH. CONF. ESTUARIES OF PACIFIC NORTHWEST. OREGON STATE UNIV. ENG. EXP. STA. CIRCULAR NO. 42. PP. 249-271.

SOME NEW CRITERIA FOR REVIEWING PLANS FOR NEW MARINAS AND OTHER SHORE-TIED STRUCTURES IN THE REGIONS OF PUGET SOUND AND ADJACENT WATERS THAT ARE TO BE ADDED TO THE TRADITIONAL LIST FOR

REF. NO.-0162 (CONTINUED)

PLANNING DESIGN CONSIDERATIONS ARE DISCUSSED AS TO ORIGIN AND POSSIBLE METHODS OF COMPLIANCE. THESE CRITERIA INVOLVE LIMITS ON THE EXTENT AND TYPE OF STRUCTURE TO MAINTAIN WATER QUALITY AND TO MINIMIZE BARRIERS IN THE PATH OF JUVENILE, MIGRATORY SALMON. A MODEL IS DEVELOPED FOR DESCRIBING GROSS KINEMATICS IN A MARINA OF SIMPLE PLANFORM FOR THE PURPOSES OF COMPARING THE EFFECT OF DIFFERENT GEOMETRIES ON CIRCULATION PATTERNS. A FEW MARINAS NOW IN OPERATION ARE REVIEWED AS ILLUSTRATIONS OF HOW CONVENTIONAL DESIGNS CONFORM TO THE NEW GUIDELINES. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: HARBOR, BREAKWATER, FISH, MIGRATION, LEGAL, ECONOMICS, PROTECT, CR 1

****
REF. NO.-0484

RICHEY, E.P. NECE, R.E. 1974.

FLOATING BREAKWATERS-STATE OF THE ART.

PP. 1-19 IN : PROC. FLOATING BREAKWATERS CONFERENCE, NEWPORT RI. TECH. SER. NO. 24. (Q.V. KOWALSKI, 1974A).

THE PAPER IS AN UPDATING OF ITS FIRST PRESENTATION UNDER THE SAME TITLE AT THE SECOND ANNUAL TECHNICAL CONFERENCE ON ESTUARIES OF THE PACIFIC NORTHWEST, MARCH 1972, CORVALLIS, OR. THIS PAPER REALIGNS THE EARLIER ONE TO CONSIDER THE SIGNIFICANT INTERVENING DEVELOPMENTS IN BREAKWATER FORMS, ANALYSES, AND FIELD TESTS. MANY OF THESE DEVELOPMENTS APPEAR AS INDIVIDUAL PAPERS IN THE PROCEEDINGS OF THE FLOATING BREAKWATER CONFERENCE, SO ONLY BRIEF REFERENCES TO THEM NEED BE MADE.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: BREAKWATER, PROTECT

****
REF. NO.-0426

RICKER, F.W. 1975.

POLICY STATEMENT ON THE COASTAL WETLANDS ACT (M.R.S., T.12 (AS AMENDED)).

MAINE DEPT. NATURAL RESOURCES, AUGUSTA, ME. 14 PP.

THE OBJECTIVES OF THIS PAPER ARE: 1) TO CLARIFY THE DEPARTMENTAL POLICY ON WETLANDS APPLICATIONS; 2) TO STANDARDIZE THE DEPARTMENT'S PROCEDURE OF REVIEW AND EVALUATION OF ALL APPLICATIONS GENERATED BY THE COASTAL WETLANDS CONTROL ACT; 3) TO INFORM THE PUBLIC OF THE SCOPE OF THE LAW AND HOW IT PROTECTS THEIR WELFARE; 4) TO ASSIST THE DEPARTMENT OF ENVIRONMENTAL PROTECTION IN THEIR ADMINISTRATION OF THE LAW BY EXPLAINING THE DEPARTMENT'S PHILOSOPHY OF THE LAW, BY ESTABLISHING SOUND GUIDELINES TO BE USED BY ALL PERSONNEL IN MAKING

REF. NO.-0426 (CONTINUED)

RECOMMENDATIONS, ALL APPLICATIONS SHOULD BE TREATED EQUALLY AND FAIR DECISIONS RENDERED TO ALL CONCERNED.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: GOV REP

DESCRIPTORS: CR 7, PRODUCTIVITY, CUMULATIVE EFFECTS

****
REF. NO.-0161

RIESE, R.C. 1971.

EXPERIMENT IN SHORE PROTECTION.

MILITARY ENG. 63(48):181-182.

THE ARTICLE DESCRIBES THE INITIATION OF A PROJECT TO CONSTRUCT AND STUDY A PROTOTYPE GROIN FIELD. OBJECTIVES OF THE EXPERIMENTAL GROIN ARE TO DETERMINE THE INFLUENCE OF GROIN DIMENSION AND SHAPE ON THE VOLUME OF ENTRAPPED SAND, AND TO STUDY HOW SAND MOVES OVER, AROUND, OR THROUGH A GROIN. A PRIMARY PURPOSE OF THE PROJECT IS TO COLLECT DATA WHICH CAN BE APPLIED TO CONSTRUCTION OF SHORE PROTECTION WORKS. AFTER FULL TESTING OF THIS SINGLE GROIN A FIELD OF GROINS WILL BE BUILT TO DETERMINE ITS EFFECT.

NATURE OF REFFRENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: GROIN, CR 2, PROTECT

****
REF. NO.-0056

RIGG, G.B. MILLER, R.C. 1949.

INTERTIDAL PLANT AND ANIMAL ZONATION IN THE VICINITY OF NEAH BAY, WASHINGTON.

PROCEEDINGS CA. ACADEMY OF SCIENCES. FOURTH SERIES. 26(10): 323- 351.

A SURVEY WAS MADE OF THE VERTICAL DISTRIBUTION OF SPECIES OF MARINE ALGAE AND MARINE INVERTEBRATES IN OR ADJACENT TO THE INTERTIDAL ZONE AT CERTAIN LOCALITIES IN THE VICINITY OF NEAH BAY, WASHINGTON. THE ENVIRONMENTAL COMPLEX IN THIS AREA FAVORS AN ABUNDANT INTERTIAL FLORA AND FAUNA. FOR SELECTED LOCALITIES, TABULATIONS WERE MADE OF THE VERTICAL RANGE ABOVE OR BELOW ZERO TIDE DATUM OF THE PRINCIPAL SPECIES OF BROWN, RED, AND GREEN ALGAE AND OF THE VERTICAL DISTRIBUTION OF LITTORAL INVERTEBRATES. A DISTINCT ZONATION OF ORGANISMS WAS FOUND, AND ONLY ABOVE THE LARGE ALGAE WAS THE ZONATION OF INVERTEBRATES CONSPICUOUS. ZONATION WAS VIEWED AS RESULTING FROM TWO PRIMARY FACTORS: OPTIMAL VERTICAL RANGE OF AN ORGANISM AS DETERMINED BY SUCH FACTORS AS FOOD SUPPLY, ILLUMINATION AND ENDOSMOSIS WHEN EXPOSED TO RAIN, AND COMPETITION FROM OTHER ORGANISMS ABOVE AND BELOW THIS OPTIMUM RANGE.

NATURE OF REFERENCE: BIO

REF. NO.-0056 (CONTINUED)

TYPE OF REFERENCE: PUB

DESCRIPTORS: BREAKWATER, PROTECT, CR 1

****
REF. NO.-0405

ROESSLER, M.A. BEARDSLEY, G.L. 1974.

BISCAYNE BAY: ITS ENVIRONMENT AND PROBLEMS.

FLORIDA SCIENTIST, QUARTERLY JOURNAL OF THE FLORIDA ACADEMY OF SCIENCES 37(4):185-204.

BISCAYNE BAY IS A SEMI-TROPICAL LAGOON ADJACENT TO MIAMI, FLORIDA. TIDES ARE SEMI-DIURNAL AND VARY FROM ABOUT 2.5 FT AMPLITUDE AT INLETS TO 0.5 FT IN THE INTERIOR BASINS. NUTRIENTS ARE AVAILABLE IN NORTHERN SECTIONS BUT RELATIVELY SCARCE IN THE SOUTHERN BAY. PRIMARY PRODUCTIVITY IN THE SOUTH IS MAINLY FROM SEAGRASSES AND ALGAE, WHILE IN THE NORTH PHYTOPLANKTON IS MORE IMPORTANT. DIVERSE INVERTEBRATE AND FISH POPULATIONS OCCUR, BUT FEW SPECIES ARE EXTREMELY ABUNDANT. ACTIVITIES SUCH AS DREDGE AND FILL, SEWAGE POLLUTION, CAUSEWAY CONSTRUCTION AND SHORELINE MODIFICATIONS HAVE ALTERED CIRCULATION AND NUTRIENT CYCLES. THE GREATEST IMPACT HAS BEEN OBSERVED NEAR MIAMI BUT CHANGES ARE OCCURING IN THE SOUTHERN REGIONS AS WELL. HOPEFULLY, INFORMED AND ACTIVE CITIZENS AND THE DADE COUNTY, STATE AND FEDERAL GOVERNMENTS WILL CONTINUE EFFORTS SUCH AS CREATION OF THE BISCAYNE NATIONAL MONUMENT AND THE FLORIDA POWER AND LIGHT COOLING RESERVOIR TO PROTECT BISCAYNE BAY AND TO PROVIDE PUBLIC ACCESS FOR RECREATION. PLANNING IS NEEDED NOW, AND ACTION MUST BE TAKEN, BEFORE OPTIONS RUN OUT AND COST ESCALATES TO THE POINT WHERE CONSERVATION AND RESTORATION IS ECONOMICALLY IMPOSSIBLE. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: CR 4, CAUSEWAY, DREDGE/FILL, BRIDGE

****
REF. NO.-0373

ROGERS, S.M., JR. 1977.

SHORELINE CHANGES ON THE FLORIDA COAST.

ENGINEER, BUR. BEACHES AND SHORES, FLORIDA DEPT. NATL. RES. PERS. COMM.

A MAJOR CAUSE OF REVETMENT FAILURE IS PERCOLATION OF WATER BEHIND THEM, ERODING AWAY THE BACKING. AN ALLEGED PROBLEM AT ST. AUGUSTINE IS RATS IN A RIPRAP REVETMENT. REVETMENTS WITH A 2:1 SLOPE ARE PREFERRED TO VERTICAL WALLS DUE TO POOR ENERGY DISSIPATION BY THE LATTER. AT ST. AUGUSTINE MASSIVE SHORELINE CHANGES HAVE OCCURRED DUE TO INLET DREDGING AND JETTY CONSTRUCTION PRIOR TO 1940. DOGBONE GROINS WERE EXPECTED TO PERFORM WELL BUT ACTUALLY HAVE NOT. THE DEPARTMENT OF NATURAL RESOURCES SELDOM SEES BIOLOGICAL PROBLEMS DUE TO STRUCTURES. MOST ARE ENGINEERING IN NATURE.

NATURE OF REFERENCE: GENERAL

REF. NO.-0373 (CONTINUED)

TYPE OF REFERENCE: INT

DESCRIPTORS: REVETMENT, JETTY, CR 3, CR 4, CR 5, GROIN

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REF. NO.-0299

RORHOLM, N. FELD, S. 1971.

RHODE ISLAND MARINAS AND BOAT YARDS, 1970.

DEPT. OF RESOURCE ECONOMICS OCCASIONAL PAPERS 71-001. UNIVERSITY OF RHODE ISLAND, KINGSTON. 17 PP.

THIS REPORTS ON THE RESULTS OF A SURVEY OF RHODE ISLAND BOATYARDS AND MARINAS. DURING THE PERIOD FROM 1965-1970 BOAT REGISTRATION INCREASED BY 18 PERCENT. FIRMS THAT PROVIDE PRIMARY SERVICES SUCH AS DOCKAGE, SUPPLIES AND WINTER STORAGE, RANGE FROM FROM CORPORATIONS DESERVING THE NAME SHIP YARD, THROUGH FULL TIME MARINAS, NON-PROFIT CLUBS, TO SMALL PART TIME BUSINESSES. THE LARGEST GROUP OF BOATS IS KEPT AT FULL TIME MARINAS. NEARLY ONE HALF OF THE BOATS KEPT AT MOORINGS IN THE RHODE ISLAND COASTAL ZONE ARE LESS THAN 15 FEET LONG. SLIGHTLY MORE THAN ONE HALF OF THE BOATS THAT ARE KEPT IN THE COASTAL ZONE DURING THE SUMMER ARE STORED BY COMMERCIAL ESTABLISHMENTS DURING THE WINTER. SINCE 1962 CAPACITY OF MARINAS HAS INCREASED 98 PERCENT. FURTHER EXPANSION MAY BE A PROBLEM BECAUSE OF CAPITAL. THE MAJORITY OF FULL TIME MARINAS ARE IN SOME FORM CLOSED CORPORATE OWNERSHIP. EIGHT MILLION DOLLAR GROSS BUSINESS GENERATES AN ADDITIONAL $6 MILLION ECONOMIC ACTIVITY IN RHODE ISLAND AND THE SURROUNDING AREA.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0382

ROSS, B. UNDATED.

HYDROLOGIC CONSIDERATIONS FOR THE FLORIDA KEYS BRIDGE REPLACEMENT PROGRAM.

H.W. LOCHNER, INC., CONSULTING ENGINEERS. 12 PP.

THIS REPORT ASSESSES THE PROBABLE HYDROLOGIC ALTERATIONS WHICH HAVE RESULTED BECAUSE OF THE EXISTING BRIDGES AND WHICH MAY RESULT FROM THE CONSTRUCTION OF THE NEW REPLACEMENT BRIDGES AND THE HYDRAULIC EFFECTS ON THE BRIDGES THEMSELVES. THE DISCUSSION IS CONCERNED WITH EVALUATION AND DETERMINATION OF DESIGN MEASURES THAT COULD BE EMPLOYED TO MITIGATE ADVERSE EFFECTS OF HYDRAULIC ACTION TO BOTH THE LOCAL HYDROLOGIC SYSTEM AND THE BRIDGES THEMSELVES. RECOMMENDATIONS INCLUDE THAT NO NEW OPENINGS IN THE KEY SYSTEM BE CONSIDERED, CULVERTS SHOULD BE USED IN THE LOWER KEYS, HURRICANE PROTECTION SHOULD BE EMPHASIZED AND THAT NEW STRUCTURES SHOULD BE ABOVE STANDARD PROJECT HURRICANE FLOODS.

NATURE OF REFERENCE: GENERAL

REF. NO.-0382 (CONTINUED)

TYPE OF REFERENCE: UNPUB

DESCRIPTORS: BRIDGE, LAND TRANSPORT, CR 4

****
REF. NO.-0117

ROSS, C.W. 1944.

EXPERIMENTAL SHEET PILE GROINS, PALM BEACH, FLORIDA.

U.S. ARMY CORPS OF ENGINEERS, BEB. TECH. MEMO. NO. 10. UNPAGED.

THIS REPORT DESCRIBES THE RESULTS OF A FIELD TEST OF FIVE SHEET PILE GROINS CONSTRUCTED ON THE ATLANTIC COAST OF PALM BEACH, FLORIDA. THIS TEST PROGRAM WAS INITIATED TO DETERMINE THE REASONS FOR THE RAPID DETERIORATION OF STEEL SHEET PILINGS IN THE AREA. THE EXPERIMENTAL STRUCTURES WERE MONITORED FOR NINE YEARS. COMPARISONS WERE MADE AMONG THE FIVE INSTALLATIONS DURING AND AT THE CONCLUSION OF THE STUDY TO DETERMINE RATES OF PERFORATION, SUITABILITY OF DIFFERENT STEELS TO THE MARINE ENVIRONMENT AND RELATIVE VALUES OF DIFFERENT PROTECTIVE COATINGS AS WELL AS LIFE SPAN AND OTHER FACTORS. IMPROVED MONITORING METHODS WERE DEVELOPED AS A RESULT OF THIS STUDY.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0376

ROSS, N.W. 1977.

BIOLOGICAL IMPACTS OF MARINAS.

URI MARINE ADVISORY SERVICE. UNIVERSITY OF RHODE ISLAND, NARRAGANSETT. PERS. COMM.

N. ROSS MAINTAINS THAT MARINAS DO NOT NECESSARILY LEAD TO POOR WATER CIRCULATION AND ANOXIC CONDITIONS. THE NIXON, OVIATT, NORTHBY (1973, ECOLOGY OF SMALL BOAT MARINAS. TECH. REPORT SER. NO. 5. UNIV. RHODE IS., KINGSTON) STUDY IS AN EXAMPLE. MARINAS ARE OFTEN VERY PRODUCTIVE AND ARE MOST PRODUCTIVE WHEN MARSHES ARE LEAST PRODUCTIVE (SPRING AND SUMMER MONTHS). ROSS NOTED THAT THE NIXON, ET. AL. PAPER IS OFTEN MISQUOTED. THESE AUTHORS DREW SOME RATHER CONSERVATIVE CONCLUSIONS FROM THEIR DATA (E.G. SUGGESTED MARINAS BE WELL FLUSHED UNDERSIDES OF MARINA FLOATS SHOULD NOT BE PAINTED WITH ANTIFOULING PAINT) IN SPITE OF NOT FINDING NEGATIVE BIOLOGICAL IMPACTS IN THEIR DATA. OTHER AUTHORS HAVE QUOTED THESE CONCLUSIONS AND IGNORED THE DATA IN THIS REPORT. ROSS IS CURRENTLY CONDUCTING A LITERATURE REVIEW ON THE BIOLOGICAL IMPACTS OF SMALL BOAT MARINAS.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: INT

REF. NO.-0376 (CONTINUED)

DESCRIPTORS: HARBOR, PRODUCTIVITY

****
REF. NO.-0070

ROUNSEFELL, G.A. 1972.

ECOLOGICAL EFFECTS OF OFFSHORE CONSTRUCTION.

JOURNAL OF MARINE SCIENCE. 2(1):1-213.

AN EVALUATION OF CURRENT KNOWLEDGE OF THE PROBABLE ECOLOGICAL EFFECTS OF VARIOUS TYPES OF OFFSHORE CONSTRUCTION REVEALS SLIGHT DANGER FROM THE MAJORITY OF CONSTRUCTION PROGRAMS. THE GREATEST DANGERS LIE IN THE PLACEMENT OF ARTIFICIAL ISLANDS WITHIN OR TOO CLOSELY ADJACENT TO ESTUARIES WHERE THEY CAN SIGNIFICANTLY AFFECT WATER EXCHANGE, AND IN THE PROLIFERATION OF WATER COOLED NUCLEAR POWER PLANTS. PERHAPS THE MOST PRESSING NEED FOR ULTIMATE HUMAN SURVIVAL IS THE FURTHER DEVELOPMENT OF POWER FROM NATURAL FORCES TO REPLACE POWER FROM NUCLEAR AND FOSSIL FUEL SOURCES. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: BULKHEAD, SUBSTRATE, SUCCESSION, REEF, BRIDGE, BUOY

****
REF. NO.-0456

ROY MANN ASSOCIATES COASTAL ZONE RESOURCES CORPORATION. 1972.

GENERAL GUIDELINES FOR USE OF THE GREAT LAKES SHORELINE.

ROY MANN ASSOCIATES. CAMBRIDGE, MASS. 59 PP.

THE PURPOSE OF THESE GUIDELINES IS TO RECOMMEND METHODS BY WHICH SHORELINE TYPE ANALYSIS CAN PROVIDE ANSWERS TO LAND USE AND WATER USE MANAGEMENT POLICIES. THEY RECOMMEND MEASURES AND PRACTICES FOR EACH GROUP OF LAND AND WATER USES AND STRUCTURAL NEEDS THAT WOULD OPTIMIZE AT THE SAME TIME SCENIC, RECREATIONAL, AND BIOTIC VALUES ON THE ONE HAND, AND SHORE STABILIZATION ON THE OTHER.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: CR A, STABILIZE, PROTECT

****
REF. NO.-0087

SALOMAN, C.H. 1975.

REF. NO.-0087 (CONTINUED)

A SELECTED BIBLIOGRAPHY OF THE NEARSHORE ENVIRONMENT: FLORIDA WEST COAST.

U.S. ARMY CORPS OF ENGINEERS. CERC MISC. PAP. NO. 5-75. 268 PP.

A COLLECTION OF OVER 2,900 REFERENCES ON ECOLOGICAL AND COASTAL ENGINEERING SUBJECTS RELATED TO THE NEARSHORE ENVIRONMENT OF THE FLORIDA WEST COAST. REFERENCES ARE GROUPED BY SUBJECT AND ALPHABETIZED BY AUTHOR WITHIN EACH SUBJECT HEADING. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUR

DESCRIPTORS: SEDIMENTATION, CUMULATIVE EFFECTS, HABITAT, BENTHOS, CR 3, CR 4

****
REF. NO.-0488

SALOMAN, C.H. 1976.

THE BENTHIC FAUNA AND SEDIMENTS OF THE NEARSHORE ZONE OFF PANAMA CITY BEACH, FLORIDA.

U.S. ARMY CORPS OF ENGINEERS. CERC MISC. REP. NO. 76-10. N.P.

THIS STUDY PRESENTS BASIC SCIENTIFIC DATA ON THE BENTHIC FAUNA AND SURFACE SEDIMENTS OF THE NEARSHORE ZONE OF PANAMA CITY BEACH, FLORIDA, BEFORE RESTORATION OF THE BEACH, AND THE RESULTS OF A STUDY ON THE EFFECT OF HURRICANE ELOISE ON THE BENTHIC FAUNA IN THE SWASH ZONE OF PANAMA CITY BEACH. SURFACE SEDIMENTS WERE ANALYZED FOR PARTICLE-SIZE DISTRIBUTION, PERCENT CARBON, ORGANIC CARBON AND CARBONATE, AND STATISTICAL FACTORS. THE SURFACE SEDIMENTS EXHIBITED UNIFORMITY OVER TIME AND LOCATION. THE BENTHIC INVERTEBRATES WERE REPRESENTED BY 170 SPECIES IN 26 MAJOR TAXA. THE TAXON WITH THE MOST ABUNDANT SPECIES (69) WAS THE PHYLUM POLYCHAETA. THE FAUNA WAS DOMINATED BY 14 SPECIES WHICH CONSTITUTED 80 PERCENT OF THE COLLECTED INDIVIDUALS. THE NUMBER OF SPECIES AND THE DIVERSITY INDEX WERE LOWEST IN THE SWASH ZONE AND HIGHEST AT THE OFFSHORE STATIONS AT A DEPTH OF 30 FEET. NUMBER OF INDIVIDUALS WAS HIGHEST IN MAY AND AUGUST AND LOWEST IN NOVEMBER AND FEBRUARY. OF THE INVERTEBRATE SPECIES, 21 MAY BE NEW TO SCIENCE; 15 OF THE 21 ARE AMPHIPODS AND 4 OF THESE ARE AMONG THE MOST ABUNDANT SPECIES OCCURRING IN THE NEARSHORE ZONE. CORRELATION OF ANIMAL ABUNDANCE TO SELECTED SEDIMENTOLOGICAL PARAMETERS WAS LOW. MEAN GRAIN SIZE WAS THE MOST SIGNIFICANT SEDIMENT FACTOR TESTED. THE EFFECT OF HURRICANE ELOISE ON PANAMA CITY BEACH WAS EXTENSIVE. THE BEACH AND PRIMARY SAND DUNE WERE SEVERELY ERODED. THE NUMBER OF INDIVIDUALS CONTINUED TO INCREASE FOR 6 DAYS FOLLOWING THE STORM; THEREAFTER, IT DECREASED. THE NUMBER OF SPECIES INCREASED ALSO, REACHING A PEAK ON THE THIRD DAY AFTER THE STORM, AND THEN IT DECREASED. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUR

DESCRIPTORS: CR 3, BENTHOS

****
REF. NO.-0139

SANKO, P. 1975.

SHORELINE PROTECTION GUIDE FOR PROPERTY OWNERS.

NEW YORK SEA GRANT ADVISORY SERVICE. ALBANY., NY 22 PP.

THIS GUIDE REPORTS THE BASIC PHYSICAL PROCESSES OF EROSION AND DEPOSITION SUCH AS WIND, WAVES, CURRENTS, LITTORAL DRIFT, AND TIDES. COMMON SHORE PROTECTION STRUCTURES ARE EXPLAINED, AS WELL AS THEIR LIMITATIONS AND POSSIBLE SIDE EFFECTS. BULKHEADS, REVETMENTS, SEAWALLS, GROINS, BREAKWATERS, PROTECTIVE BEACHES, DUNES, AND VEGETATIVE METHODS ARE EXAMINED. (NTIS ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUR

DESCRIPTORS: REVETMENT, BULKHEAD, GROIN, BREAKWATER, PROTECT, STABILIZE, EROSION, LITTORAL PROCESSES

****
REF. NO.-0020

SATO, S. TANAKA, N. IRIE, I. 1968.

STUDY ON SCOURING AT THE FOOT OF COASTAL STRUCTURES.

COASTAL ENGINEERING, 11TH COASTAL ENG. CONF. PP. 579-598.

THIS PAPER PRESENTS THE RESULTS OF TWO-DIMENSIONAL MODEL EXPERIMENTS CONDUCTED IN ORDER TO CLARIFY THE BASIC CHARACTERISTICS AND TO FIND OUT SOME PREVENTIVE MEASURES AGAINST SCOURING AROUND COASTAL STRUCTURES. THE APPLICABILITY OF THESE RESULTS TO THE FIELD ARE DISCUSSED ON THE BASIS OF SOME RESULTS OF FIELD INVESTIGATIONS. THE RESULTS OF TWO-DIMENSIONAL EXPERIMENTS PRESENTED HEREIN SHOW THAT THE CHARACTERISTICS OF WAVES JUST IN FRONT OF STRUCTURES AND THEIR REFLECTION BY STRUCTURES ARE MOST IMPORTANT FACTORS OF SCOURING. THE RESULTS OF FIELD INVESTIGATIONS, HOWEVER, INDICATE THAT IN ADDITION TO THOSE TWO FACTORS, THE CURRENTS CAUSED DUE TO WAVES AROUND STRUCTURES PLAY IMPORTANT ROLES IN SCOURING. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUR

DESCRIPTORS: REVETMENT, BREAKWATER, EROSION, SCOURING

****
REF. NO.-0074

SAVAGE, R.P. 1959.

LABORATORY STUDY OF THE EFFECT OF GROINS ON THE RATE OF LITTORAL TRANSPORT: EQUIPMENT DEVELOPMENT AND INITIAL TESTS.

U.S. ARMY CORPS OF ENGINEERS. BEB TECH. MEMO. NO. 114. 56 PP.

GROINS AND GROIN FIELDS ARE A COMMON TYPE OF SHORE STRUCTURE USED TO PREVENT, OR SLOW DOWN,

REF. NO.-0074 (CONTINUED)

SHORE EROSION ON BOTH ARTIFICIALLY PLACED BEACH FILLS AND NATURAL BEACHES. GROINS ARE OCCASIONALLY INSTALLED ALSO TO TRAP MATERIAL MOVING IN THE LITTORAL STREAM THUS HELPING TO BUILD UP A BEACH. HOWEVER, VERY LITTLE IS KNOWN ABOUT THE QUANTITATIVE EFFECT OF A GROIN FIELD ON THE RATE OF LITTORAL MOVEMENT PAST THE FIELD. SOME INFORMATION HAS BEEN OBTAINED FROM MEASUREMENT OF DRIFT RATES ALONG THE NEW JERSEY COAST, BY COMPARING RATES OBTAINED FOR THE EARLY 1900'S WITH FEW OR NO GROINS INSTALLED, WITH RATES MEASURED IN THE PAST SEVERAL YEARS AFTER INSTALLATION OF LARGE NUMBERS OF GROINS. LABORATORY TESTS HAVE NOW BEEN INITIATED TO STUDY BOTH THE RELATION OF LITTORAL MOVEMENT TO WAVE ACTION, AND THE EFFECT OF THE GROINS AND GROIN FIELDS ON THIS MOVEMENT. THIS REPORT DESCRIBES THE FIRST SERIES OF THESE TESTS, AND THE DATA AND OBSERVATIONS OBTAINED THEREFROM.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: GROIN, LITTORAL PROCESSES

****
REF. NO.-0114

SAVAGE, R.P. WOODHOUSE, W.W., JR. 1968.

CREATION AND STABILIZATION OF COASTAL BARRIER DUNES.

PROC. 11TH CONF. ON COASTAL ENG. PP. 671-700.

EXPERIMENTS ARE UNDERWAY ALONG THE COAST OF NORTH CAROLINA USING SAND FENCES AND DUNE GRASSES TO CREATE AND STABILIZE A BARRIER DUNE LINE PARALLEL TO AND BEHIND THE EXISTING BEACHES OF LOW LYING BARRIER ISLANDS. SEVERAL MILES OF EXPERIMENTAL SECTIONS HAVE BEEN ESTABLISHED, AND THEIR EFFECTIVENESS IN TRAPPING WIND-BLOWN SAND HAS BEEN ANALYZED. RESULTS TO DATE (1968) SHOW THAT SAND FENCES AND DUNE GRASSES WILL TRAP WIND-BLOWN SAND AND CREATE A BARRIER DUNE. A VIGOROUS, RAPIDLY-GROWING STRIP OF AMERICAN BEACHGRASS, 90 FEET WIDE, WILL TRAP AND RETAIN ALL OF THE SAND BEING TRANSPORTED BY THE WIND IN THE AREA. THUS, A STABILIZED DUNE CAN BE 'GROWN' IN THE AREA USING AMERICAN BEACHGRASS. SAND FENCES HAVE BEEN SHOWN TO BE EFFECTIVE SAND TRAPS AND CAN BE USED WHERE SATISFACTORY PLANTS ARE NOT AVAILABLE OR WHERE IT MAY NOT BE FEASIBLE TO AWAIT THE ESTABLISHMENT OF VEGETATION. TWO METHODS OF USING SAND FENCES TO CREATE LARGE DUNES HAVE BEEN INVESTIGATED; BOTH ARE WORKABLE. THE USE OF FABRICS AS SAND FENCES HAS BEEN INVESTIGATED; THEIR EFFECTIVENESS VARIES WITH THE POROSITY OF THE FABRIC. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: PROTECT, STABILIZE, CR 6

****
REF. NO.-0040

SAVILLE, T., JR. GARCIA, W. J. LEE, C. E. 1965.

BREAKWATERS WITH VERTICAL AND SLOPING FACES.

REF. NO.-0040 (CONTINUED)

U. S. ARMY CORPS OF ENGINEERS. CERC REPRINT NO. 2-66. 24 PP.

DESIGN CRITERIA NOW PERMIT EFFICIENT AND ECONOMIC BUILDING OF BREAKWATER STRUCTURES: NEW RESEARCH AND EVALUATING PERFORMANCE OF EXISTING STRUCTURES RESULT IN A CONSTANT IMPROVEMENT OF DESIGN CRITERIA. THIS PAPER SUMMARIZES THE PROGRESS MADE IN THE FIELD SINCE 1953 AND OUTLINES UNITED STATES PRACTICES OF DETERMINING DESIGN CRITERIA AT PRESENT

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0042

SAVILLE, T., JR. 1973.

GENERAL REPORT ON CONTROLLING LITTORAL DRIFT TO PROTECT BEACHES, DUNES, ESTUARIES AND HARBOR ENTRANCES.

U.S. ARMY CORPS OF ENGINEERS. CERC REPRINT NO. 73-26. 18 PP.

THE REPORT CONSISTS OF A SUMMARY OF PAPERS PRESENTED BY REPRESENTATIVES FROM TEN COUNTRIES AT THE 23RD MEETING OF THE PERMANENT INTERNATIONAL ASSOCIATION OF NAVIGATION CONGRESSES (PIANC) ON THE MEANS OF CONTROLLING LITTORAL DRIFT TO PROTECT BEACHES, DUNES, ESTUARIES, AND HARBOR ENTRANCES. ESTABLISHMENT OF ARTIFICAL BEACHES IS ALSO DISCUSSED.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0125

SAVILLE, T., JR. 1955.

LABORATORY DATA ON WAVE RUN-UP AND OVERTOPPING ON SHORE STRUCTURES.

U.S. ARMY CORPS OF ENGINEERS. BEB TECH. MEMO. NO. 64. 32 PP.

A NEED FOR MORE ADEQUATE DESIGN DATA ON WAVE RUN-UP AND OVERTOPPING OF SHORE STRUCTURES HAS LONG BEEN EVIDENT. IN 1952, A TEST PROGRAM ON WAVE RUN-UP AND OVERTOPPING WAS INITIATED AT THE WATERWAYS EXPERIMENT STATION OF THE CORPS OF ENGINEERS AT VICKSBURG, MISSISSIPPI. THE BASIC DATA ARE PRESENTED IN THIS REPORT WITHOUT THE ANALYSIS. A REPORT CONTAINING AN ANALYSIS AND CONCLUSIONS WILL BE PUBLISHED AT A LATER DATE.

NATURE OF REFERENCE: ENG

REF. NO.-0125 (CONTINUED)

TYPE OF REFERENCE: PUB

DESCRIPTORS: BULKHEAD, REVETMENT, PROTECT

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REF. NO.-0130

SAVILLE, T., JR. 1967.

ROCK MOVEMENT IN LARGE-SCALE TESTS OF RIPRAP STABILITY UNDER WAVE ACTION.

U.S. ARMY CORPS OF ENGINEERS. CERC REPRINT NO. 3-67, 7 PP.

THERE HAVE BEEN SEVERAL INSTANCES IN THE PAST FOUR OR FIVE YEARS OF DAMAGE TO THE RIPRAP PROTECTION OF SOME EARTH DAMS AND EMBANKMENTS IN MAJOR RESERVOIRS IN THE MIDDLE WESTERN PORTION OF THE UNITED STATES. IN PARTICULAR, IN SMALL SECTIONS OF THE EMBANKMENT OF THE SNAKE CREEK SUB-IMPOUNDMENT IN THE GARRISON RESERVOIR IN NORTH DAKOTA, SOME RIPRAP WAS REMOVED BY A SEVERE STORM IN 1964. IT WAS RECOGNIZED AT THE TIME OF CONSTRUCTION THAT THE RIPRAP PROTECTION TO BE PLACED ON THIS EMBANKMENT WAS CONSIDERABLY LIGHTER THAN DESIRABLE, AND WAS KNOWINGLY PLACED AS AN EXPERIMENT TO SEE IF LIGHTER GRADED MATERIAL MIGHT STILL PROVIDE SUFFICIENT PROTECTION IN A RESERVOIR WHERE THE WATER SURFACE ELEVATION CHENGED PERIODICALLY. HIGH WAVES CAN DEVELOP OVER THE 32-MILE FETCH IN THIS AREA OF FREQUENT HIGH WIND VELOCITY. LOSS OF SOME RIPRAP IN THIS AREA HAS LED TO AN INVESTIGATION OF VARIOUS SCHEMES OF UPGRADING THE RIPRAP. AS A PART OF THIS INVESTIGATION, TESTS HAVE BEEN MADE AT CERC OF VARIOUS TYPES OF RIPRAP EXPOSED TO WAVE ACTION. TESTS HAVE BEEN MADE ON BOTH A SMALL AND LARGE SCALE. THESE WAVE TANK TESTS WERE RUN AS SHORT SERIES OF BURSTS OF WAVES FOLLOWED BY PERIODS OF CALM TO APPROXIMATE NATURAL FORCES AND TO PROVIDE WAVES OF THE DESIRED HEIGHT. (MODIFIED AUTHOR ABSTRACT)

NATURE OF REFFRENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: REVETMENT, PROTECT

****
REF. NO.-0287

SAVILLE, T., JR. 1960.

LABORATORY INVESTIGATION OF RUBBLE-MOUND BREAKWATERS.

JOUR. WATERWAYS AND HARBORS DIV. A.S.C.E. 86(WW3):151-161.

THE AUTHOR PRESENTS DATA LEADING TO CONTINUED PROGRESS TOWARD A SOUNDER BASIS FOR STABILITY AND ECONOMIC DESGIN OF RUBBLE-MOUND STRUCTURES. IN THE COURSE OF TESTING, DATA PERTAINING TO WAVE RUN-UP ON RUBBLE WAS ACQUIRED. RELATIVE RUN-UP HAS BEEN PLOTTED AS A FUNCTION OF WAVE STEEPNESS DETERMINED FOR THE WATER DEPTH AT THE STRUCTURE TOE. THE TABULATIONS ARE MADE FOR ARBITRARILY SELECTED WATER DEPTHS FOR WHICH THE WAVE CHARACTERISTICS ARE DETERMINED. ALL DATA WERE OBTAINED IN SMALL SCALE LABORATORY TESTS, AND THE POSSIBLE EXISTENCE OF SCALE EFFECT MUST BE CONSIDERED WHEN APPLYING THEM TO PROTOTYPE CONDITIONS. A DISCUSSION BY R.Y. HUDSON CONCLUDES THE PAPER, AND HE COMPARES THESE DATA PRESENTED WITH OTHERS IDEAS AND CONCLUDES BY

REF. NO.-0287 (CONTINUED)

SAYING THAT THEY ARE PROBABLY UNUSABLE FOR THE CONDITION OF BREAKING WAVES, AND THAT FUTURE TESTING IS NESCESSARY

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUR

DESCRIPTORS: BREAKWATER

****
REF. NO.-0165

SCHIJF, J.B. 1959.

GENERALITIES ON COASTAL PROCESSES AND PROTECTION.

J. WATERWAYS AND HARBORS DIVISION, ASCE 85:1-12.

THE ENGINEERING BASIS OF COASTAL PROTECTION IS DISCUSSED IN GENERAL WITH SOME EMPHASIS ON EXPERIENCE ON THE DUTCH SEACOAST. THE PAPER SUPPORTS A SHIFT IN THE OLD PHILOSOPHY OF PROTECTION BY GROINS AND SEAWALLS TO A NEW PHILOSOPHY OF PROTECTION BY SAND FILL. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUR

DESCRIPTORS: GROIN, JETTY, EROSION, PROTECT, STABILIZE

****
REF. NO.-0304

SCHUBEL, J.R. CARTER, H.H. SCHIEMER, E.W. WHALEY, R.C. 1972.

A CASE STUDY OF LITTORAL DRIFT BASED ON LONG-TERM PATTERNS OF EROSION AND DEPOSITION.

CHESAPEAKE SCIENCE. 13(2):80-86.

A KNOWLEDGE OF THE ROUTES AND RATES OF LITTORAL DRIFT IS A PREREQUISITE TO PREDICTING THE PROBABLE EFFECTS OF PROPOSED NEARSHORE STRUCTURES ON THE MAINTENANCE OF A STRETCH OF COAST. THE PREVAILING PATTERNS OF LITTORAL DRIFT CAN, AT LEAST IN SOME CASES, BE MORE RELIABLY ESTABLISHED BY INFERENCE FROM THE LONG-TERM PATTERNS OF EROSION AND DEPOSITION THAN THROUGH SHORT-TERM FIELD STUDIES OF SEDIMENT TRANSPORT. THIS PAPER DESCRIBES, FOR AN 8 MILE STRETCH OF CHESAPEAKE BAY COAST, A CASE STUDY DESIGNED TO DELIMIT THE LONG-TERM PATTERNS OF EROSION AND ACCRETION IN ORDER TO ESTABLISH THE PREVAILING LITTORAL DRIFT. (MODIFIED AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUR

DESCRIPTORS: LITTORAL PROCESSES, CR 6, JETTY, GROIN

****
REF. NO.-0163

SCHULTZ, L.P. ASHBY, W. 1967.

AN ANALYSIS OF AN ATTEMPT TO CONTROL BEACH EROSION IN CHESAPEAKE BAY, AT SCIENTISTS CLIFFS, CALVERT COUNTY, MARYLAND.

CHESAPEAKE SCIENCE 8(4):237-252.

AN ANALYSIS WAS MADE OF THE FUNCTIONING OF 45 GROINS CONSTRUCTED TO CONTROL BEACH EROSION AT SCIENTISTS CLIFFS, CALVERT COUNTY, MARYLAND. THE RESULTS SHOW THAT THE HEIGHT OF GROINS, NON-SPILLOVER LENGTH OF GROINS, AND AVAILABILITY OF COARSE SAND ARE CRITICAL FACTORS AFFECTING HEIGHT OF SAND ACCUMULATION AND WIDTH OF BEACH BETWEEN GROINS. VERY FINE SAND PARTICLES, SMALLER THAN 0.125 MM IN DIAMETER, ARE TRANSPORTED BY WAVE ACTION SEAWARD AND FORM VERY LITTLE OF THE SAND ACCUMULATION BETWEEN GROINS. THE VERTICAL CLAY CLIFFS AND BULKHEADS BUILT PARALLEL TO AND CLOSE TO THE CLIFFS, WHEN NOT PROTECTED WITH GROINS AND A SLOPING BEACH, CREATE CONDITIONS THAT INCREASE THE RATE OF EROSION AND PROHIBIT THE ACCUMULATION OF BEACH MATERIALS. STRONG WAVE FRONTS THAT STRIKE THESE VERTICAL WALLS HEAD-ON AT HIGH TIDAL LEVELS DURING STORMS ARE REFLECTED AND SET UP STRONG REFLECTED WAVES THAT TRANSPORT BEACH SAND SEAWARD, WHICH EXPOSES THE HARD CLAY CLIFF TO FURTHER EROSION. IN A FULLY DEVELOPED OR MATURE GROIN SYSTEM THE GROINS, IN ADDITION TO BEING SAND TIGHT, SHOULD HAVE SUFFICIENT HEIGHT FOR AT LEAST 3/5 OF THEIR LENGTH TO STOP WATER FROM SPILLING-OVER DURING MOST STORMS AND SUFFICIENT LENGTH TO HOLD A BEACH WIDE ENOUGH SO THAT WAVES DO NOT DESTROY VEGETATION GROWING AT THE BASE OF THE CLIFF. HOWEVER, WITHOUT AN ADEQUATE SUPPLY OF COARSE TO MEDIUM SIZED SAND PARTICLES, GROINS DO NOT ACCUMULATE ENOUGH SAND TO CONTROL CLIFF EROSION. (MODIFIED AUTHOR ABSTRACT)

NATURE OF REFFRENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: GROIN, PROTECT, CR 6

****
REF. NO.-0184

SCOTT, H.A. 1964.

PONCE DE LEON INLET STABILIZATION PROJECT.

SHORE AND BEACH 37(1):4-9.

THE RESULT OF JETTY CONSTRUCTION TO STABILIZE INLETS IS DISCUSSED. THE PROMINANT EXAMPLE WAS THAT OF MASONBORO INLET IN NORTH CAROLINA WHERE A NORTH WEIR JETTY WAS CONSTRUCTED. DUE TO THE LACK OF A SOUTH JETTY A SHOAL WAS FORMED OFF THE SOUTH TIP OF THE INLET, WHICH WAS EXTENDED INTO THE INLET FROM THE DOWN DRIFT BEACH. OTHER EXAMPLES OF THE CONSTRUCTION OF ONLY ONE JETTY RESULTING IN SEVERE EROSION OF THE OPPOSITE SIDE OF THE INLET WERE DISCUSSED. PLANS AND A DISCUSSION OF THE CONSTRUCTION OF A JETTY SYSTEM AT PONCE DE LEON INLET ARE GIVEN. THE AUTHOR STRESSES THE NEED FOR CONSTRUCTION OF A COMPLETE PROJECT AT AN INLET RATHER THAN DELAYING A PORTION BECAUSE OF A LACK OF FUNDS OR PLANNING. THE EXTENT TO WHICH LITTORAL DRIFTS DEPOSIT IN THE BASIN RATHER THAN BYPASSING THE BASIN OR PASSING AROUND THE END OF THE JETTY AND DEPOSITING IN THE CHANNEL ARE TO BE DETERMINED

NATURE OF REFERENCE: GENERAL

REF. NO.-0184 (CONTINUED)

TYPE OF REFERENCE: PUR

DESCRIPTORS: JETTY, STABILIZE, PROTECT, RECREATION, EROSION, LITTORAL PROCESSES, CR 5

****
REF. NO.-0473

SENATE COMMITTEE ON COMMERCE. 1974.

COASTAL ZONE MANAGEMENT- 'THE COASTAL IMPERATIVE: DEVELOPING A NATIONAL PERSPECTIVE FOR COASTAL DECISION MAKING'.

PROC. SECOND ANNUAL COASTAL ZONE MANAGEMENT CONFERENCE, CHARLESTON, SOUTH CAROLINA. 93RD CONGRESS, 2ND SESSION. U.S. GOVERNMENT PRINTING OFFICE. 196 PP.

PROCEEDINGS AND RELATED MATERIAL OF THE SECOND ANNUAL COASTAL ZONE MANAGEMENT CONFERENCE HELD IN CHARLESTON, SC. ON MARCH 13-14, 1974 ARE PRESENTED. A ZONE MANAGEMENT AND A DISCUSSION OF THE ROLE OF THE COASTAL ZONE MANAGEMENT ACT IN PROTECTING THAT INTEREST ARE PROVIDED. MANY OF THE ISSUES THAT NOW DIVIDE DEVELOPERS, LOCAL AND STATE GOVERNMENTS, INDUSTRIALISTS, RECREATION PROPONENTS, AND ENVIRONMENTALISTS WERE REVIEWED, INCLUDING : SITING OF OFFSHORE AND COASTAL POWER FACILITIES; SELECTION OF SITES FOR DEEPWATER PORTS; PROTECTION OF MARINE LIFE IN THE COASTAL ZONE: AND PUBLIC ACCESS TO BEACHES.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUR

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0092

SENECA, E.D. WOODHOUSE, W.W., JR. BROOME, S.W. 1976.

DUNE STABILIZATION WITH PANICUM AMARUM ALONG THE NORTH CAROLINA COAST.

U.S. ARMY CORPS OF ENGINEERS. CERC MISC. REPORT NO. 76-3. 42 PP.

THIS STUDY WAS CONDUCTED TO DETERMINE THE DUNE STABILIZING AND DUNE BUILDING POTENTIAL OF PANICUM AMARUM (BITTER PANICUM) ALONG THE NORTH CAROLINA COAST. EXPERIMENTAL PLANTINGS WITH EMPHASIS ON BITTER PANICUM TOGETHER WITH AMMOPHILA BREVILIGULATA (AMERICAN BEACHGRASS) AND UNIOLA PANICULATA (SEA OATS) WERE MADE AT TWO COASTAL LOCATIONS. OVER A 24 MONTH PERIOD AT A FOREDUNE SITE, BITTER PANICUM ACCUMULATED ABOUT ONE-FOURTH THE SAND ACCUMULATED BY EITHER THREE SELECTIONS OF AMERICAN BEACHGRASS OR MIXED SPECIES PLANTINGS INVOLVING ALL THREE GRASSES. RESULTS INDICATE THAT THE PRINCIPAL VALUES OF BITTER PANICUM ARE IN STABILIZING SANDY COASTAL AREAS AND IN MIXED SPECIES PLANTINGS TO BUILD AND STABILIZE COASTAL FOREDUNES IN THE SOUTHEASTERN UNITED STATES. (MODIFIED NTIS ABSTRACT)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUR

REF. NO.-0092 (CONTINUED)

DESCRIPTORS: PROTECT. LAND PLANTS. CR 5. CR 6. EROSION

****
REF. NO.-0507

SETHNESS. E.D.. JR. MOORE. W.L. SABATHIER. D. 1974.

THE PERFORMANCE OF AN OFFSET BREAKWATER CONFIGURATION IN WIND-GENERATED WAVES.

PP. 73-90 IN PROC. FLOATING BREAKWATERS CONFERENCE. NEWPORT RI. TECH. SER. NO. 24. (Q.V. KOWALSKI. 1974A).

A BRIEF DISCUSSION IS GIVEN OF THE NEED FOR FLOATING BREAKWATERS AND OF PREVIOUS STUDIES. TWO CONFIGURATIONS FOR A BREAKWATER ARE THEN CONSIDERED: FIRST. A CONTINUOUS RIGID VERTICAL WALL. AND SECOND. A SEGMENTED RIGID VERTICAL WALL WITH ALTERNATE SEGMENTS OFFSET A DISTANCE EQUAL TO ONE-HALF OF THE INCIDENT WAVE LENGTH. WITH THE OFFSET CONFIGURATION THE WAVE FORCES ON ALTERNATE SEGMENTS TEND TO OPPOSE EACH OTHER GIVING LESS NET FORCE ON THE OFFSET WALL. THAN FOR A CONTINUOUS WALL A SIMPLE ANALYSIS LEADS TO EQUATIONS AND DIAGRAMS REPRESENTING THE FORCES FOR EACH CONFIGURATION. A MODEL OF AN OFFSET CONFIGURATION FLOATING BREAKWATER WAS TESTED IN BOTH REGULAR MECHANICALLY GENERATED WAVES AND IN WIND GENERATED WAVES. EXPERIMENTALLY MEASURED WAVE TRANSMISSION COEFFICIENTS ARE COMPARED WITH THOSE FOR A CONTINUOUS RIGID WALL AND FOR OTHER TYPES OF FLOATING BREAKWATERS. THE POTENTIAL OF THE OFFSET FLOATING BREAKWATER IS CONSIDERED. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUR

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0520

SEYMOUR. R.J. ISAACS. J.D. 1974.

TETHERED FLOAT BREAKWATERS.

PP. 55-72 IN PROC. FLOATING BREAKWATERS CONFERENCE. NEWPORT. RI. TECH. SER. NO. 24. (Q.V. KOWALSKI. 1974A).

THE TETHERED FLOAT BREAKWATER IS CONSTRUCTED OF A LARGE NUMBER OF VERY BUOYANT FLOATS WITH A CHARACTERISTIC DIMENSION ABOUT EQUAL TO THE WAVE HEIGHT. THE FLOATS ARE INDEPENDANTLY TETHERED BELOW THE SURFACE IN A WATER DEPTH MANY TIMES THE FLOAT DIAMETER. THE FLOATS ARE DRIVEN IN OPPOSITION TO THE WAVES BY THE PRESSURE GRADIENT FIELD AND THE DOMINANT ATTENUATION MECHANISM IS DRAG FROM THE RESULTANT BUOY MOTION. A MATHEMATICAL MODEL HAS BEEN DERIVED TO PREDICT THE ATTENUATION OF A PARTICULAR ARRAY CONFIGURATION ON A GIVEN INCIDENT WAVE SPECTRUM. THIS THEORETICAL MODEL HAS BEEN VERIFIED AT LABORATORY SCALE AND ITS ESSENTIAL FEATURES VERIFIED AT OCEAN SCALE. PERFORMANCE PREDICTIONS ARE SHOWN FOR A WIDE RANGE OF DESIGN CONDITIONS. THE BREAKWATER SYSTEM APPEARS ATTRACTIVE FOR DEEP WATER APPLICATIONS AND CAN BE CONSTRUCTED IN WATER OF ANY DEPTH GREATER THAN SOME MINIMUM. POTENTIAL APPLICATIONS INCLUDE HARBOR AND MARINA PROTECTION AND OFFSHORE TERMINALS. A MECHANISM FOR LOW COST AND FLEXIBLE BEACH EROSION CONTROL

REF. NO.-0520 (CONTINUED)

EMPLOYING THIS SYSTEM IS SUGGESTED. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: BREAKWATER, PROTECT

****
REF. NO.-0105

SHARP, W.C. VADEN, J. 1970.

TEN-YEAR REPORT ON SLOPING TECHNIQUES USED TO STABILIZE ERODING TIDAL RIVER BANKS'.

SHORE AND BEACH, APRIL, 1970. PP 31-35.

THE CHESAPEAKE BAY AREA HAS MANY TIDAL BAYS AND STREAMS THAT SUBJECT THE LAND TO SERIOUS EROSION. BULKHEADS AND JETTIES CAN CONTROL EROSION BUT ARE EXPENSIVE TO CONTROL AND MAINTAIN. THE SCS AND TWO VIRGINIA CONSERVATION AGENCIES COOPERATED TO STUDY THE EFFECTIVENESS OF VEGETATION IN EROSION CONTROL. THE STUDY SHOWED THAT SLOPING AND PLANTING WERE USEFUL FOR STOPPING OR REDUCING EROSION ON SITES WHERE CORDGRASSES ARE ADAPTED TO THE BEACH TO BE TREATED, LITTORAL DRIFT CONTRIBUTED TO SAND ACCRETION AND THE EXPOSURE TO NORMAL STORM PATHS IS NOT SEVERE. SMOOTH AND SALT MEADOW CORDGRASS ARE THE BEST ADAPTED SPECIES.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: JETTY, REVETMENT, EROSION, LITTORAL PROCESSES, CR 6

****
REF. NO.-0541

SHAY, E.A. JOHNSON, J.W. 1951.

INFLUENCE OF GROINS ON BEACH STABILIZATION.

UNIV. OF CALIFORNIA AT BERKELEY, DEPT. OF ENGINEERING SERIES 14, NO. 6. 19 PP. + APPENDICES.

EROSION OF A BEACH ACCURS WHEN THE SUPPLY OF SAND TO IT IS LESS THAN THE RATE AT WHICH THE SAND IS TRANSPORTED ALONG THE BEACH. TO CONTROL EROSION, GROIN SYSTEMS OFTEN ARE USED TO PROMOTE THE ACCRETION AND STABILIZATION OF BEACHES WHERE THE LITTORAL DRIFT INDUCED BY THE WAVE ACTION IS A SIGNIFICANT FACTOR. THIS STUDY INCLUDED TWO TYPES OF GROINS, A SLOPING IMPERMEAPLE GROIN AND A HIGH PERMEABLE GROIN. THIS INVESTIGATION WAS INTENDED TO DETERMINE THE RELATIVE INFLUENCE OF THE HIGH PERMEABLE GROINS AND THE SLOPING IMPERMEABLE GROINS FOR STABILIZING A BEACH WHERE LITTORAL TRANSPORT OCCURS. THE IMPERMEABLE GROINS WERE MORE EFFECTIVE IN THE ACCRETION OF SANDS THAN THE PERMEABLE GROINS

NATURE OF REFERENCE: GENERAL

REF. NO.-0541 (CONTINUED)

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0379

SHEALY, M.H., JR. BOOTHE, B.H., JR. BEARDEN, C.M. 1975.

A SURVEY OF THE BENTHIC MACROFAUNA OF FRIPP INLET AND HUNTING ISLAND, SOUTH CAROLINA, PRIOR TO BEACH NOURISHMENT.

S.C. MAR. RES. CENT. TECH. REP. SER. NO. 7. 30 PP.

A STUDY WAS CONDUCTED TO COLLECT AND EVALUATE BENTHIC SAMPLES, CONDUCT AERIAL SURVEYS OF SAND DISPERSION PATTERNS, AND TO ESTIMATE POTENTIAL ENVIRONMENTAL EFFECTS OF OBTAINING BORROW MATERIAL FROM 3 SPECIFIC AREAS. SEVERAL RECOMMENDATIONS ARE PROPOSED FOR THE HUNTING ISLAND BEACH NOURISHMENT PROJECTS.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: CR 5, HABITAT, BENTHOS

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REF. NO.-0395

SHEPARD, F.P. WANLESS, H.R. 1971.

OUR CHANGING COASTLINES.

MCGRAW-HILL INC., NEW YORK. 549 PP. EXCERPTS.

WORKS OF MAN ARE DOING FAR MORE TO ELIMINATE OUR VAST COASTAL HERITAGE THAN TO PRESERVE IT. EVERY DAM THAT IS BUILT ACROSS A STREAM THAT WOULD NORMALLY SUPPLY SAND TO THE SHORE IS DECREASING THE SIZE OF THE ADJACENT BEACHES. THE SAME IS TRUE OF STORAGE BASINS THAT HAVE BEEN USED EXTENSIVELY IN SOUTHERN CALIFORNIA TO CATCH FLOODWATERS COMMING FROM THE MOUNTAINS. MUCH SAND IS DEPOSITED IN THESE BASINS RATHER THAN REACHING THE SHORE. THE CONSTRUCTION OF HARBOR JETTIES IS AN EVEN MORE IMPORTANT CAUSE OF BEACH EROSION. SAND BUILDS OUT ON THE UPCURRENT SIDE OF THE JETTIES AND IS REMOVED FROM THE DOWNCURRENT BEACHES BY WINTER STORMS. NORMAL NORMAL SUMMER REPLENISHMENT IS NOT POSSIBLE BECAUSE SAND IS STORED ON THE UPCURRENT JETTY SIDE, RESULTING IN THE DESTRUCTION OF MANY DOWNCURRENT BEACHES. EXAMPLES OF EROSION DUE TO JETTIES MAY BE FOUND IN SOUTHERN CALIFORNIA, CAPE MAY, N.J. AND OCEAN CITY, MD. OCEAN CITY JETTIES HAVE ERODED AT LEAST 1,500 FEET OF ASSATEAGUE ISLAND. THE OREGON COAST, AT TILLAMOOK AND THE MOUTH OF THE COLUMBIA HAS ALSO BEEN ADVERSLY AFFECTED BY JETTIES. CLEAR KNOWLEDGE OF CURRENTS IS VITAL TO SOLVE PROBLEMS OF ENGINEERING CONSTRUCTION AND ITS EFFECTS ON BEACHES. SOME PLACES STILL HAVE AN OPEN QUESTION OF WHICH WAY THE PREDOMINATE CURRENT FLOWS, WHICH INDICATES THE IMPORTANCE OF MAKING LONG CONTINUED STUDIES OF SHORE CURRENTS TO HELP IMPROVE INFORMATION ON HOW TO PRESERVE BEACHES. WE MUST LEARN BETTER METHODS OF BYPASSING SAND DOWNCURRENT FROM THE JETTIES AND ATTEMPT TO BUILD NEW JETTIES AT POINTS WHERE BEACHES ARE

REF. NO.-0395 (CONTINUED)

LEAST LIKELY TO BE AFFECTED. THIS BOOK ATTEMPTS TO IDENTIFY THE GEOLOGY AND PHYSICAL FACTORS OF MAJOR COASTAL AREAS AND INDICATES MAN-INDUCED CHANGES AND HOW THEY HAVE AFFECTED THE AREAS WHERE THEY HAVE BEEN CONSTRUCTED.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: JETTY, STABILIZE, PROTECT, GROIN, BREAKWATER, HARBOR

****
REF. NO.-0035

SHERK, J.A. O'CONNOR, J.M. NEUMANN, D.A. 1976.

EFFECTS OF SUSPENDED SOLIDS ON SELECTED ESTUARINE PLANKTON.

U.S. ARMY CORPS OF ENGINEERS. CERC MISC. REPT. 76-1. 50 PP.

A 3-YEAR LABORATORY STUDY IDENTIFIED BIOLOGICAL COMPONENTS OF SELECTED POPULATIONS OF ESTUARINE ORGANISMS WHICH WERE MOST SENSITIVE TO THE EFFECTS OF PARTICLE SIZE AND CONCENTRATION OF (A) SUSPENDED MINERAL SOLIDS SIMILAR IN SIZE TO SEDIMENTS LIKELY TO BE FOUND IN, OR ADDED TO, ESTUARINE SYSTEMS IN CONCENTRATIONS TYPICALLY FOUND DURING FLOODING, DREDGING, AND DISPOSAL OF DREDGED MATERIAL, AND (B) NATURAL SEDIMENTS IN IDENTICAL EXPERIMENTS. CARBON ASSIMILATION BY FOUR SPECIES OF PHYTOPLANKTON WAS SIGNIFICANTLY REDUCED BY THE LIGHT ATTENUATING PROPERTIES OF FINE SILICON DIOXIDE SUSPENSIONS. INGESTION OF RADIOACTIVELY TAGGED FOOD CELLS BY TWO SPECIES OF CALANOID COPEPODS WAS SIGNIFICANTLY REDUCED DURING EXPOSURE TO SUSPENSIONS OF FULLER'S EARTH, FINE SILICON DIOXIDE, AND NATURAL PATUXENT RIVER SILT. THIS REPORT PROVIDES BASE-LINE DATA FOR PREPROJECT DECISION MAKING BASED ON CONCENTRATION EFFECTS OF DIFFERENT SUSPENDED SEDIMENTS ON SELECTED TYPICAL ESTUARINE PLANKTON. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0397

SHULDINER, P. 1977.

THE IMPACTS OF HIGHWAYS ON WETLANDS.

DEPT. OF CIVIL ENGINEERING. UNIVERSITY OF MASSACHUSETTS. AMHERST. PERS COMM.

DR. SHULDINER IS THE PRINCIPAL INVESTIGATOR FOR A STUDY BEING CONDUCTED FOR THE NATIONAL COOPERATIVE HIGHWAY RESEARCH COUNCIL. THIS STUDY IS A STATE OF THE ART REVIEW OF THE IMPACTS OF HIGHWAYS ON WETLANDS. IT WILL RESULT IN THE PUBLICATION OF AN ANNOTATED BIBLIOGRAPHY, STATE OF THE ART REVIEW, AND SIX CASE STUDIES. EXPECTED PROJECT COMPLETION DATE IS MID-1978.

NATURE OF REFERENCE: GENERAL

REF. NO.-0397 (CONTINUED)

TYPE OF REFERFNCE: INT

DESCRIPTORS: CAUSEWAY, LAND TRANSPORT

****
REF. NO.-0266

SHULENBERGER, E. 1970.

RESPONSES OF GEMMA GEMNA TO CATASTROPHIC BURIAL.

VELIGER 13(2):163-170.

THIS STUDY INVESTIGATES THE ABILITY OF A SMALL CLAM (GEMMA GEMMA) TO BURROW UPWARDS IN RESPONSE TO CATASTROPHIC BURIAL. BURIAL RESPONSES WERE TESTED WITH A SILTY SUBSTRATE AND SANDY SUBSTRATE. THE CLAMS WERE ABLE TO COPE WITH A BURIAL OF UP TO 230 MM OF SAND AND 57 MM OF SILT.

NATURE OF REFFRENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: INVERTEBRATES

****
REF. NO.-0264

SIBUL, O.J. TICKNER, E.G. 1956.

MODEL STUDY OF OVERTOPPING OF WIND-GENERATED WAVES ON LEVEES WITH SLOPES OF 1:3 AND 1:6.

UNIVERSITY OF CALIFORNIA INST. OF ENGINEERING RESEARCH, BERKELEY. SERIES 71, ISSUE 8. 17 PP.

THE OVERTOPPING OF WIND GENERATED WAVES ON LEVEES WITH SLOPES OF 1:3 AND 1:6 WAS STUDIED IN A LABORATORY WIND-WAVE TUNNEL. THE RESULTS WERE COMPARED WITH EXPERIMENTS COMPLETED AT THE WATERWAYS EXPERIMENT STATION, VICKSBURG, MISSISSIPPI, WHERE THE TESTS WERE ACCOMPLISHED WITH MECHANICALLY-GENERATED UNIFORM WAVES WHICH WERE NOT AFFECTED BY WIND. FOR LOW WIND VELOCITIES THE RESULTS FROM THE PRESENT TESTS WERE SIMILAR TO THE VICKSBURG TESTS. FOR HIGHER WIND VELOCITIES, HOWEVER, AN ADDITIONAL OVERTOPPING OCCURS DUE TO THE WIND ACTION, SO THAT THE TOTAL OVERTOPPING COULD BE SEPERATED INTO TWO PARTS; THAT IS, 1) OVERTOPPING DUE TO THE WAVE ACTION 2) OVERTOPPING DUE TO THE WIND ACTION. THE LABORATORY TESTS SHOWED THAT THE WIND STARTS TO AFFECT THE RESULTS FOR WIND SPEEDS ABOVE 10 MPH FOR 1:6 SLOPE LEVEE AND ABOVE 20 MPH FOR THE 1:3 SLOPE LEVEE. IT IS EXPECTED THAT FOR THE PROTOTYPE THIS CRITICAL WIND SPEED PROBABLY WOULD BE CONSIDERABLY HIGHER. FROUDE'S SIMILARITY LAW PROBABLY IS NOT APPLICABLE IN PREDICTING CRITICAL PROTOTYPE WIND SPEEDS. FOR EXAMPLE, THE CRITICAL SPEED AT THE GIVEN LINEAR SCALE RATIO OF 1:67.5 IS 80 MPH FOR THE 1:6 SLOPE LEVEE AND 160 MPH FOR THE 1:3 SLOPE LEVEE. THE ADDITIONAL OVERTOPPING DUE TO THE WIND DEPENDS UPON THE SLOPE OF THE LEVEE, AND THE SLOPE REMAINS THE SAME REGARDLESS OF THE SCALE-RATIO. THE VOLUME OF OVERTOPPING, HOWEVER, DEPENDS UPON THE INTENSITY OF THE WIND, AND REQUIRES A HIGHER WIND SHEAR STRESS TO ACHIEVE THE RATE OF FLOW FOR THE PROTOTYPE WHICH WOULD BE PREDICTED FROM THE MODEL DISCHARGE. THE DIRECT EFFECT OF WIND ON THE OVERTOPPING OF WAVES SHOULD THEREFORE BE REGARDED AS QUALITATIVE AND GIVE ONLY THE

REF. NO.-0264 (CONTINUED)

TREND FOR OVERTOPPING EFFECTS WHEN THE WIND SPEED IS INCREASED. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUR

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0470

SILBERHORN, G.M. DAWES, G.M. BARNARD, T.A., JR. 1974.

COASTAL WETLANDS OF VIRGINIA: GUIDELINES FOR ACTIVITIES AFFECTING VIRGINIA WETLANDS.

VIRGINIA INST. MARINE SCIENCE SPECIAL REPORT IN APPLIED MARINE SCIENCE AND OCEAN ENGINEERING 46. 52 PP.

INFORMATION IS PROVIDED TO ASSIST IN THE DEVELOPMENT OF GUIDELINES FOR EVALUATING WETLANDS BY TYPE AND FOR IDENTIFYING THE CONSEQUENCES OF WETLANDS UTILIZATION. CONTINUING RESEARCH NEEDS ARE CITED. THE STATUS OF WETLANDS KNOWLEDGE IS REVIEWED.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUR

DESCRIPTORS: RESEARCH NEEDS

****
REF. NO.-0064

SILVESTER, R. HO, S. 1974.

NEW APPROACH TO COASTAL DEFENSE.

CIVIL ENG. 44(9):66-69.

AS AN ALTERNATIVE TO FAILING GROINS AND SEAWALLS TO PROTECT RECLAIMED BEACHES, ARTIFICIAL HEADLANDS WERE CONSTRUCTED NEAR SINGAPORE, JAPAN. SAND HAS FILLED IN BEHIND THE HEADLANDS RESULTING IN A SERIES OF SMALL BAYS. DESIGN AND PLACEMENT OF ARTIFICIAL HEADLANDS DEPENDS ON DESIRED BEACH CHARACTERISTICS, WAVE ACTIVITY, AND CURRENTS OF A LOCATION.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUR

DESCRIPTORS: BREAKWATER, PROTECT, EROSION

****
REF. NO.-0079

SILVESTER, R. 1974.

COASTAL ENGINEERING, II: SEDIMENTATION ESTUARIES, TIDES, EFFLUENT, AND MODELLING.

ELSEVIER PUBLISHING COMPANY, AMSTERDAM. PP. 127-148.

THE ARTICLE DISCUSSES WAVE GENERATION AND PROPAGATION AND OBSERVATIONS REGARDING SEDIMENT TRANSPORT AND THE EFFECTS ON A VARIETY OF SHORELINE STRUCTURES. PLACEMENT OF STRUCTURES AND METHODS OF PREVENTING EROSION ARE DISCUSSED. NO SPECIFIC IN PLACE STRUCTURES ARE REFERRED TO BUT DRAWINGS ARE USED TO DEMONSTRATE PRINCIPLES. EFFECTS OF WAVES, COASTAL TOPOGRAPHY, STORMS, RIVER OUTLETS AND OTHER FACTORS ON DESIGN AND PLACEMENT OF STRUCTURES ARE ADDRESSED.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUR

DESCRIPTORS: REVETMENT, BULKHEAD, BREAKWATER, HARBOR, GROIN, PROTECT, SEDIMENTATION, EROSION, TRAINING, STABILIZE, LITTORAL PROCESSES

****
REF. NO.-0190

SIPPLE, W.S. 1974b.

A BIBLIOGRAPHY OF MARYLANDS TIDAL WETLANDS (MARSHES-SWAMPS).

WETLAND SECTION, WATER RESOURCES ADMINISTRATION, MARYLAND DEPT. OF NAT'L. RESOURCES. FIRST DRAFT, DEC. 16. 23 PP.

FIRST DRAFT OF A COMPREHENSIVE LIST OF LITERATURE ON MARYLAND'S WETLANDS. THIS INCLUDES UNPUBLISHED MANUSCRIPTS, IN-HOUSE REPORTS, PERTINENT MEMOS, ENVIRONMENTAL IMPACT STATEMENTS, LAWS, CONSULTANT PROPOSALS AND WETLAND MAPS.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: GOV REP

DESCRIPTORS: BIBLIOGRAPHY

****
REF. NO.-0270

SIPPLE, W.S. 1971.

THE PAST AND PRESENT FLORA AND VEGETATION OF THE HACKENSACK MEADOWS.

BARTONIA. 41:4-56.

THE PRESENT FLORA OF THE HACKENSACK MEADOW IN NEW JERSEY IS COMPARED WITH THAT DESCRIBED BY TORREY IN 1819 AND PREHISTORIC VEGETATION AS EVIDENCED BY POLLEN PROFILES FROM THE BOG AREAS. A MAJOR VEGETATION CHANGE HAS OCCURRED, PROBABLY PRIMARILY DUE TO DRAINAGE OF THE BOG. CUTTING

REF. NO.-0270 (CONTINUED)

OF TIMBER ALSO MAY HAVE CONTRIBUTED TO THE CHANGE. SALT ENCROACHMENT HAS ALSO OCCURRED AS SEA LEVELS ROSE. A NUMBER OF WEEDY HERBS HAVE INVADED THE AREA, REPLACING MUCH OF THE NATIVE VEGETATION.

NATURE OF REFFRENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0292

SIPPLE, W.S. 1974a.

AN ECOLOGICAL EVALUATION OF THE HEADWATER MARSH ON MILL CREEK (CALVERT COUNTY) AT CHESAPEAKE RANCH CLUB WITH AN ASSESSMENT OF ECOLOGICAL DAMAGE IMPOSED BY CAUSEWAY CONSTRUCTION.

MARYLAND DEPT. OF NATURAL RESOURCES. 9 PP.

IN MARCH 1974, THE ESTUARINE-MARSHLAND ECOSYSTEM IN THE AREA OF THE CHESAPEAKE RANCH CLUB CAUSEWAY WAS INSPECTED TO DETERMINE THE VALUE OF THE MARSH AT THE HEADWATERS OF MILL CREEK PRIOR TO CAUSEWAY CONSTRUCTION, THE IMPACT OF THE CAUSEWAY ON THE SURROUNDING ECOSYSTEM, AND CORRECTIVE OR MITIGATIVE MEASURES WHICH COULD BE IMPLEMENTED TO REDUCE DEGRADATION IF IT WERE FOUND TO EXIST. IT WAS FOUND THAT THE MILL CREEK HEADWATER MARSH FOOD WEBS LEAD TO IMPORTANT FISH AND WILDLIFE RESOURCES. THE CAUSEWAY SUBSTANTIALLY REDUCED TIDAL ACTION AND CAUSED IMPOUNDMENT OF WATER UPSTREAM AND ON ADJACENT MARSH, AND REDUCED DETRITAL INPUTS RECEIVED DOWNSTREAM. IT IS SUGGESTED THAT THE CAUSEWAY BE REMOVED IN TOTAL OR PARTIALLY TO RESTORE ORIGINAL TIDAL ACTION IN THE UPSTREAM MARSH.

NATURE OF REFFRENCE: BIO

TYPE OF REFERENCE: UNPUB

DESCRIPTORS: CAUSEWAY, CH 6, SEDIMENTATION, CUMULATIVE EFFECTS

****
REF. NO.-0515

SKINNER, F.W. MILLER, L. HARVEY, W. REED, H.W. 1973.

PROTECTION OF THE ENVIRONMENT DURING DEMOLITION ACTIVITIES.

U.S. ARMY CORPS OF ENGINEERS. WES MISC. PUB. NO. N-73-6.

THE OBJECTIVE OF THIS STUDY (ORIGINALLY PLANNED AS A THREE-YEAR STUDY) WAS TO REFINE AND/OR DEVELOP NEW DEMOLITION TECHNIQUES WHICH WOULD SERVE TO MINIMIZE HAZARDS TO THE ENVIRONMENT IN AREAS WHERE DEMOLITION ACTIVITIES ARE SCHEDULED OR ARE ON-GOING. THE OBJECTIVE OF THE FIRST YEAR'S EFFORT WAS TO SURVEY PRESENT DEMOLITION TECHNIQUES AND PROVIDE A VEHICLE FOR ASSURING THAT THE MOST MODERN DEMOLITION TECHNIQUES AND PROCEDURES ARE DESCRIBED SO THAT THE ARMY MIGHT MAKE USE OF THEM IN DEVELOPING DEMOLITION CONTRACTS. THE PHASE OF THE STUDY REPORTED HEREIN

REF. NO.-0515 (CONTINUED)

INVOLVED: 1) DETERMINING THE GENERAL STATE-OF-THE-ART OF THE DEMOLITION INDUSTRY REGARDING TECHNIQUES AND CURRENT PRACTICES; 2) ASSESSING ARMY DEMOLITION PROBLEMS AS CHARACTERIZED BY TYPICAL PROJECTS; AND 3)EVOLVING BASIC GUIDELINES AND OPTIONAL PLANS OF ACTION TO BE CONSIDERED IN PLANNING DEMOLITION PROJECTS. IT IS CONCLUDED FROM THIS INVESTIGATION THAT CURRENT ARMY POLICIES CONCERNING PROTECTION OF THE ENVIRONMENT FROM DEMOLITION OPERATIONS ARE IN STEP WITH BROAD FEDERAL POLICIES AIMED AT IMPROVING THE NATIONAL LEVEL OF ENVIRONMENTAL QUALITY. PRELIMINARY GUIDANCE, AIMED AT PROTECTING OR IMPROVING THE AMBIENT ENVIRONMENT, IS PROVIDED FOR ELEMENTS OF THE ARMY UNDERTAKING ON-BASE DEMOLITION PROJECTS IN THE FUTURE. THE ARMY MUST KEEP INFORMED REGARDING TECHNOLOGICAL CHANGES IN THE STATE-OF-THE-ART OF DEMOLITION EQUIPMENT AND METHODS. IT ALSO MUST DEVISE A SELF-EVALUATING SYSTEM TO ASSURE THAT COMPLIANCE WITH THESE CHANGES IS ACCOMPLISHED. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0025

SLAUGHTER, T.H. 1967.

BEACH DIMINUATION AND BOTTOM SCOUR IN FRONT OF VERTICAL PROTECTIVE STRUCTURES IN THE MARYLAND CHESAPEAKE BAY.

SHORE AND BEACH. 35(2):7-17.

THE OBJECTIVE OF THIS PAPER IS TO PRESENT CASE HISTORIES OF SELECTED BULKHEADED AREAS WHICH HAVE BEEN ASSEMBLED AS A PART OF THE BASIC RESEARCH SHORE EROSION PROGRAM OF THE MARYLAND GEOLOGICAL SURVEY. THE DATA CITE AND COMPARE ONSHORE AND OFFSHORE CHANGES DUE TO BOTH NATURAL EROSION AND MAN'S EFFORTS TO CONTROL NATURAL EROSION THROUGH THE USE OF VERTICAL STRUCTURES. AN EMPHASIS IS ON THE NEED TO UNDERSTAND NATURAL PARAMETERS AND PROCESSES TO CORRECT PROBLEMS IN BULKHEADS.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: BULKHEAD, PROTECT, EROSION, CR 6

****
REF. NO.-0416

SLAWSON, J. 1977.

OBSERVATIONS ON SHORELINE STRUCTURE EFFECTS IN SOUTHERN CALIFORNIA.

FISHERIES BIOLOGIST, NATIONAL MARINE FISHERIES, LONG BEACH, CA. PERS. COMM.

OBSERVATIONS OF THE EFFECTS OF STRUCTURES SUCH AS TIDE GATES, FILL, POWER PLANTS, BOAT DOCKS

REF. NO.-0416 (CONTINUED)

AND GROINS INDICATE THAT TIDAL PATTERNS AND LITTORAL DRIFT PATTERNS HAVE BEEN ALTERED BY MAN. A NUMBER OF RESEARCH NEEDS WERE IDENTIFIED. THESE INCLUDE EVIDENCE OF DEPENDENCE OF MARINE FISHERIES ON ESTUARIES AND COASTAL WETLANDS, LONG TERM IMPACTS OF OIL SPILLS AS OPPOSED TO CHRONIC POLLUTION RESULTING FROM MARINAS AND THE RELATIVE AMOUNT OF SHORELINE ALTERATION CONNECTED WITH NATIONAL DEFENSE.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: INT

DESCRIPTORS: CR 2, HARBOR, MOORING, GROIN, DREDGE/FILL, TIDE GATE

****
REF. NO.-0343

SLOSSON, J.E. RASKOFF, R. 1969.

WAVE DAMAGE, VENTURA COASTLINE.

PP. 322-325 IN: R. LUNG AND R. PROCTOR (EDS.) ENGINEERING GEOLOGY IN SOUTHERN CALIFORNIA. ASSN. OF ENG. GEOLOGISTS, ARCADIA, CA.

THE EFFECTS OF WAVE EROSION ON THE VENTURA COUNTY, CALIFORNIA COASTLINE ARE DESCRIBED. THIS COASTLINE IS EXPERIENCING SERVERE EROSION. AS PROPERTY VALUES HAVE INCREASED AND MORE STRUCTURES ARE BUILT ON BEACHES, HIGHER PROPORTIONAL LOSSES ARE PREDICTED UNLESS CAREFULLY DESIGNED AND CONSTRUCTED PROTECTIVE MEASURES ARE TAKEN.

NATURE OF REFFRENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0525

SMITH, F.E. 1977.

LETTER CONCERNING SMALL COASTAL STRUCTURES.

DIV. ECOLOGICAL SVCS., U.S. FISH AND WILDLIFE SVC., SACRAMENTO, CA.

PRIVATE CONSTRUCTION ON SHORELINE IS OFTEN NOT BENEFICIAL TO PUBLIC USE OF THE SHORELINE. THE PROLIFERATION OF PRIVATE PIERS AND DOCKS AT LAKE TAHOE, CALIFORNIA IS CITED AS AN EXAMPLE OF HOW AN ACCUMULATION OF INDIVIDUALLY INSIGNIFICANT STRUCTURES CAN, TAKEN TOGETHER, DEGRADE AN AREA. DISCUSSION CONCERNING CUMULATIVE EFFECTS, REGULATION OF PRIVATE SHORELINE DEVELOPMENT AND CORPS OF ENGINEER PERMITS FOR PRIVATE STRUCTURES IN NAVIGABLE WATERS ARE INCLUDED.

NATURE OF REFFRENCE: GENERAL

TYPE OF REFERENCE: UNPUB

REF. NO.-0525 (CONTINUED)

DESCRIPTORS: LEGAL, CUMULATIVE EFFECTS

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REF. NO.-0514

SMITH, F.G.W. WILLIAMS, R.H. DAVIS, C.C. 1950.

AN ECOLOGICAL SURVEY OF THE SUBTROPICAL INSHORE WATERS ADJACENT TO MIAMI.

ECOLOGY 31(1):119-146.

THE GENERAL PAUCITY OF QUANTITATIVE INFORMATION REGARDING CHEMICAL, PHYSICAL AND BIOLOGICAL CONDITIONS IN WATERS OF THE MIAMI AREA PROMPTED THIS INVESTIGATION. OBSERVATIONS WERE MADE AT A SERIES OF STATIONS COVERING A WIDE RANGE OF ENVIRONMENTAL CONDITIONS AT ONE MONTH INTERVALS IN 1945 AND 1946. THE SUBJECT OF STUDY WAS THE GENERAL ECOLOGY OF SHALLOW WATER LIFE, PARTICULARLY THE SEDENTARY ORGANISMS. THE RESULTS INDICATE THE LARGE PART PLAYED BY LAND DRAINAGE IN THE GROWTH OF PLANKTON AND SEDENTARY ORGANISMS.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: CR 4, PLANKTON, HABITAT, BENTHOS

****
REF. NO.-0491

SMITH, G.F. 1976.

OBSERVATIONS ON THE EFFECTS OF DREDGING TO SUBTIDAL COMMUNITIES AT KEYSTONE HARBOR WHIDBEY ISLAND, WASHINGTON.

HUXLEY COLLEGE OF ENVIRONMENTAL STUDIES, WESTERN WASHINGTON STATE COLLEGE. REPORT PREPARED FOR SEATTLE DIST. CORPS OF ENG. CONTRACT #DACW 67-75-C-0092. 27 PP.

THIS REPORT PRESENTS THE RESULTS OF OBSERVATIONS ON THE EFFECTS OF DREDGING ON SUBTIDAL COMMUNITIES AT KEYSTONE HARBOR ON WHIDBEY ISLAND, WASHINGTON. MAINTENANCE DREDGING OF THE HARBOR ENTRANCE WAS CARRIED OUT FROM JANUARY 26 TO FEBRUARY 20, 1976 USING A HYDRAULIC PIPELINE. THE DREDGED MATERIAL WAS PLACED ALONG A 700 FOOT SECTION OF BEACH BETWEEN THE HARBOR'S PROTECTIVE BREAKWATER AND AN ABANDONED WHARF. OBSERVATIONS OF THREE SUBTIDAL REGIONS WERE MADE BEFORE (1 DIVE), DURING (2 DIVES) AND AFTER (2 DIVES) THE COMPLETION OF DREDGING. THE BREAKWATER, ABANDONED WHARF, AND NEARSHORE BOTTOM BETWEEN THESE TWO STRUCTURES WERE OBSERVED. TURBIDITY, SEDIMENTATION, MORTALITY, AND BEHAVIORAL EFFECTS OF DREDGING ON ORGANISMS WERE OBSERVED DURING EACH DIVE. ONLY THE INNER AREAS OF THE BREAKWATER SHOWED SIGNS OF SEDIMENTATION, AND NO BEHAVIORAL EFFECTS OR MORTALITIES WERE OBSERVED DUE TO ITS PRESENCE. THE PRESENCE OF SEDIMENTATION IN THIS AREA HAD LITTLE EFFECT ON THE SETTLING OF LARVAL INVERTEBRATES OR THE GROWTH OF NEW ALGAE. IT WAS ASSUMED THAT ALL SEDIMENT ON THE BREAKWATER WOULD DISPERSE IN TIME AND ALL EFFECTS WERE SHORT-TERM AS NO SEDIMENT WAS FOUND PRIOR TO DREDGING AND DREDGING WAS LAST DONE IN 1971.

NATURE OF REFERENCE: GENERAL

REF. NO.-0491 (CONTINUED)

TYPE OF REFERENCE: GOV REP

DESCRIPTORS: CR 1, BREAKWATER, PILING, DREDGE/FILL, SEDIMENTATION, HABITAT, FISH, INVERTEBRATES

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REF. NO.-0327

SNODGRASS, F. 1964.

HOW TO TELL BREAKWATERS FROM ELEPHANTS.

THE SEAHORSE 1(4):1-4,5.

THIS IS A HUMOROUSLY WRITTEN ACCOUNT OF THE AUTHOR'S VIEWS ON THE PHYSICAL IMPACTS BREAKWATERS HAVE ON THE SOUTHERN CALIFORNIA COASTLINE. TYPICALLY SAND IS COLLECTED ON THE NORTHERN SIDE OF THESE STRUCTURES AND BEACHES SOUTH OF THE STRUCTURE ERODE. IN CASES WHERE THE BREAKWATER WAS CONSTRUCTED TO CREATE A SMALL BOAT HARBOR , THE HARBOR IS FILLED WITH SAND THAT DRIFTS AROUND THE END OF THE BREAKWATER. IN SPITE OF A KNOWLEDGE OF LITTORAL PROCESSES AND NUMEROUS EXAMPLES OF WHAT OCCURS WHEN HARBOR AND BREAKWATERS OBSTRUCT LITTORAL DRIFT, THESE STRUCTURES ARE STILL BEING BUILT ALONG THE COASTLINE.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: BREAKWATER, LITTORAL PROCESSES, EROSION, HARBOR, CR 1, CR 2

****
REF. NO.-0143

SNOW, B.C., JR. 1973.

GUIDELINES FOR THE COASTAL ZONE.

COASTAL PLAINS CENTER FOR MARINE DEVELOPMENT SERVICES. PUB. 73-5. 16 PP.

GUIDELINES TO AID DEVELOPERS, PERMIT REVIEWERS, AND THE PUBLIC IN COASTAL ZONE MANAGEMENT ARE GIVEN. THE GUIDELINES ARE COMPRISED OF TWO MAJOR PARTS: A SECTION ON LAND AND WATER CLASSIFICATIONS AND A SECTION ON USAGE CONSIDERATIONS. STRUCTURES CONSIDERED INCLUDE BREAKWATERS, GROINS, JETTIES, BULKHEADS MARINAS, AND PIERS.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: BREAKWATER, GROIN, JETTY, BULKHEAD, DREDGE/FILL, HARBOR, HABITAT

****
REF. NO.-0050

SNOW, D. 1977.

REF. NO.-0050 (CONTINUED)

INFLUENCE OF JETTIES ON SHORELINE HABITATS.

BIOLOGIST, OREGON DEPARTMENT OF FISH AND WILDLIFE, NEWPORT, OR. PERSONAL COMMUNICATION.

CHANGES IN AREAS OF EROSION AND ACCRETION OF SAND ALONG THE OREGON COAST HAVE BEEN NOTED OVER THE PAST TWENTY YEARS. THESE CHANGES SEEM TO BE ASSOCIATED IN PART WITH THE JETTIES AT RIVER AND BAY MOUTHS, AND POSSIBLY WITH NAVIGATION CHANNEL DREDGE ACTIVITIES. SEVERAL EXAMPLES OF SHORELINE CHANGES WERE CITED. NO QUANTITATIVE DATA WERE PROVIDED, BUT PERSONAL OBSERVATIONS OVER THE PAST 20 YEARS WERE SUMMARIZED.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: INT

DESCRIPTORS: JETTY, CR 1, FISH, INVERTEBRATES, TRAINING, LITTORAL PROCESSES, DREDGE/FILL, STABILIZE, BREAKWATER

****
REF. NO.-0275

SOIL CONSERVATION SERVICE. 1975.

LITTLE NESTUCCA DRAINAGE DISTRICT RC&D MEASURE ENVIRONMENTAL ASSESSMENT.

U.S. DEPARTMENT OF AGRICULTURE 10 PP. AND APPENDICES.

THE LITTLE NESTUCCA DRAINAGE DISTRICT IS LOCATED IN THE LOWER, TIDE- AFFECTED REACHES OF THE LITTLE NESTUCCA RIVER IN NORTHWESTERN OREGON. TIDEGATES WERE CONSTRUCTED IN THE PAST TO CONVERT TIDAL MARSH LANDS TO PASTURE. REPAIR AND REPLACEMENT OF THESE TIDEGATES WILL ALTER DRAINAGE PATTERNS SOMEWHAT BUT NO SIGNIFICANT CHANGES IN THE ENVIRONMENTAL SETTING ARE ANTICIPATED.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: GOV REP

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0224

SOUTH CAROLINA MARINE RESOURCES DIVISION. 1974.

GUIDELINES FOR EVALUATING COASTAL WETLAND DEVELOPMENTS.

SOUTH CAROLINA WILDLIFE AND MARINE RESOURCES DEPT. (EXCERPT).

BROAD AND SPECIFIC PROJECT GUIDELINES WERE ESTABLISHED FOR PERMIT APPLICATIONS IN AN EFFORT TO REDUCE THE IRREVERSIBLE LOSS OF PRODUCTIVE WETLAND AREAS WHILE MEETING LONG-RANGE STATE DEVELOPMENT NEEDS. SPECIFIC PROJECT GUIDELINES WERE GIVEN FOR DOCKS AND PIERS, BULKHEADS AND SEAWALLS, DREDGING AND FILLING, JETTIES AND GROINS, CABLES, PIPELINES, AND TRANSMISSION LINES.

REF. NO.-0224 (CONTINUED)

LAGOONS OR IMPOUNDMENTS, AND DRAINAGE CANALS OR DITCHES.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: CR 5, PIER, MOORING, BULKHEAD, PROTECT, STABILIZE

****
REF. NO.-0309

SOUTH CAROLINA WATER RESOURCES COMMISSION. 1972.

PORT ROYAL SOUND ENVIRONMENTAL STUDY.

SOUTH CAROLINA WATER RESOURCES COMMISSION, COLUMBIA. 555 PP.

IN RESPONSE TO A PROPOSED PETROCHEMICAL PLANT IN THE VICINITY OF PORT ROYAL SOUND, SOUTH CAROLINA AN EXTENSIVE BASELINE STUDY WAS CARRIED OUT IN THE AREA. SUBJECTS COVERED INCLUDE SURFACE WATER HYDRAULICS, GEOLOGY, GROUND WATER HYDROLOGY, WATER QUALITY, FISH RESOURCES, PHYTOPLANKTON, BENTHIC COMMUNITY, ICHTHYOPLANKTON, MARSH VEGETATION, AND WILDLIFE. THE REPORT ALSO INCLUDES A SECTION ON ESTUARINE ECOLOGY.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0330

SOUTH CAROLINA WATER RESOURCES COMMISSION. 1973.

WANDO RIVER ENVIRONMENTAL QUALITY STUDIES, AN INTERIM REPORT.

SOUTH CAROLINA WATER RESOURCES COMMISSION, COLUMBIA SC. 115 PP.

THE SOUTH CAROLINA WATER RESOURCES COMMISSION DESIGNED AND CONDUCTED AN ENVIRONMENTAL QUALITY STUDY OF A PORTION OF THE WANDO RIVER AND AN ADJACENT TRACT OF HIGHLAND DURING THE PERIOD JULY 1972 THROUGH MARCH 1973. OBJECTIVES WERE TO DOCUMENT CONDITIONS IN THE LOCAL ENVIRONMENT AND TO ASSESS IMPACTS WHICH MAY OCCUR UPON INSTALLATION OF PLANNED PORT FACILITIES AND IMPROVEMENTS. AREAS OF INVESTIGATION INCLUDE WATER QUALITY REMOTE SENSING, FISHERIES EVALUATION, HYDRAULICS, BOTTOM SEDIMENT SURVEY, GEOLOGY AND GROUND WATER, AND HIGHLANDS EVALUATION.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: CR 5, PIER

****
REF. NO.-0377

SPAGNOLI, J.J. 1977.

THE IMPACTS OF BULKHEADING ON LONG ISLAND.

CHIEF FISH AND WILDLIFE ECOLOGIST. DEPT OF ENV. PROTECTION, ALBANY, NEW YORK. PERS. COMM.

BULKHEADING IS PREVALENT ON BOTH THE NORTH AND SOUTH SHORES OF LONG ISLAND. WATER QUALITY TENDS TO BE LOWER IN BULKHEADED AREAS DUE TO SETTLING IN DREDGED CHANNELS TO BULKHEADS, BOAT POLLUTANTS, HOUSING ON SHORE WITH SEPTIC TANKS, AND THE ABSENCE OF POLLUTANT FILTERING IN SALT MARSHES. WHERE BULKHEADING DISRUPTS THE SALT WATER SPLASH ZONE OR ACCESS TO MARSH SUBSTRATE A CHANGE IN SPECIES COMPOSITION RESULTS (FROM SPARTINA ALTERNIFLORA TO PHRAGMITES) AND THE AREA BECOMES LESS PRODUCTIVE. IN GENERAL THE TENDANCY IS TO BULKHEAD IN THE LITTORAL ZONE, THE MOST BIOLOGICALLY PRODUCTIVE ZONE.

NATURE OF REFFRENCE: BIO

TYPE OF REFERENCE: INT

DESCRIPTORS: PRODUCTIVITY, BULKHEAD, CR 7

****
REF. NO.-0409

SPRUILL, J. 1977.

SHORELINE DEVELOPMENT IN SOUTHERN CALIFORNIA.

ENVIRON. SERVICES, CALIF. DEPT. OF FISH AND GAME, LONG BEACH, CA. PERS. COMM.

DEVELOPMENT AT HUNTINGTON HARBOR, CALIFORNIA IS REDUCING WILDLIFE HABITAT, INCLUDING THAT OF LEAST TERNS. IN SOME AREAS, NOTABLY UPPER NEWPORT BAY AND BOLSA CHICA, THE CALIFORNIA DEPARTMENT OF FISH AND GAME IS REESTABLISHING COASTAL MARSHES. A STUDY OF THIS PROJECT IS CURRENTLY IN DRAFT FORM AND WILL BE AVAILABLE FROM CALIFORNIA FISH AND GAME.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: INT

DESCRIPTORS: HABITAT, HARBOR, CR 2

****
REF. NO.-0535

STANSBY, M.E. 1976.

ENVIRONMENTAL CHANGE AND THE NORTHEAST PACIFIC OCEAN FISHERIES: INTRODUCTORY REMARKS.

MFR PAPER 1217. MARINE FISHERIES REVIEW 38(11):1-2.

AN INTRODUCTION TO A SERIES OF PAPERS ON THE EFFECTS OF ENVIRONMENTAL ALTERATIONS UPON THE BIOTA IS PRESENTED. THE THREE TYPES OF CHANGES CONSIDERED INCLUDE CHANGES AS A RESULT OF

REF. NO.-0535 (CONTINUED)

BLOCKING WATERWAYS, SUCH AS DAMS; CHANGES WHICH ALTER TEMPERATURE; AND CHANGES AS A RESULT OF CONTAMINATION. THE VALIDITY OF EIS'S IS DISCUSSED. IT IS CONCLUDED THAT MORE RESEARCH IS NEEDED TO SHOW THE EXTENT OF DAMAGE CAUSED TO THE BIOTA UNDER DIFFERENT CIRCUMSTANCES WHEN ALTERATIONS OCCUR. IT IS ALSO CONCLUDED THAT IS IS IMPOSSIBLE WITH THE PRESENT STATE OF KNOWLEDGE TO ADOPT PERMANENT REGULATORY MEASURES OR GUIDELINES FOR PROTECTING THE BIOTA AGAINST CONTAMINANTS AND RELATED ALTERATIONS

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0057

STEMBRIDGE, J.E., JR. 1975.

RECENT SHORELINE CHANGES OF THE ALSEA SANDSPIT, LINCOLN COUNTY, OREGON.

THE ORE BIN 35(5): 77-82.

A BRIEF HISTORY OF THE PHYSICAL CHANGES OF THE ALSEA SANDSPIT IS GIVEN. CURRENTLY THE SANDSPIT IN A STATE OF ACCRETION. IT IS POINTED OUT THAT CHANGES IN SANDSPITS FLUCUATE AND NET EROSION MAY BE SEEN IN THE FUTURE.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0460

STEPHENS, J.S., J. 1977.

BREAKWATERS AND HARBORS AS PRODUCTIVE HABITATS FOR FISH POPULATIONS--WHY ARE FISHES ATTRACTED TO URBAN COMPLEXES?.

BIOLOGY DEPT., OCCIDENTAL COLLEGE LOS ANGELES, CA. 18 PP.

RESEARCH HAS BEEN CONDUCTED IN SOUTHERN CALIFORNIA ON FISH POPULATIONS IN HARBOR FACILITIES. A TRAWLING PROGRAM AND DIVER/TRANSECT STUDY WERE METHODS USED TO COLLECT DATA. AT THE TWO SITES WHERE MOST OF THE WORK WAS CONDUCTED (LOS ANGELES HARBOR AND KING HARBOR) THERE WAS A RELATIVELY HIGH DENSITY AND VARIETY OF FISHES. IT IS CONCLUDED THAT SOUTHERN CALIFORNIA HARBORS SUPPLEMENT AND/OR REPLACE ESTUARIES.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: UNPUB

REF. NO.-0460 (CONTINUED)

DESCRIPTORS: HARBOR, BREAKWATER, CR 2, FISH

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REF. NO.-0423

STOCKLEY, C. 1974.

SALMON MIGRANTS AND SHELLFISH HABITAT IN RELATION TO MARINAS, BREAKWATERS, BULKHEADS AND LAND FILLS IN THE COLUMBIA RIVER AND COASTAL BAYS.

WASHINGTON DEPT. OF FISHERIES (MIMEO). 12 PP.

THIS PAPER WAS PRESENTED AT A CORPS OF ENGINEERS HEARING AT ASTORIA, OREGON. IT DESCRIBES THE SITUATIONS AS THEY EXIST AT A NUMBER OF LOCATIONS ON THE LOWER COLUMBIA RIVER AND SEVERAL WASHINGTON COASTAL BAYS IN TERMS OF WATER QUALITY, EFFECTS ON FISH AND SHELLFISH AND ENVIRONMENTAL DEGREDATION. THE MAIN EXPRESSED CONCERN WAS FOR WATER QUALITY DETERIORATION AND PREDATOR BUILD-UP AS THESE FACTORS AFFECT JUVENILE MIGRATING SALMONIDS. RECOMMENDATIONS ARE MADE FOR DESIGN CRITERIA FOR BULKHEADS, BREAKWATERS AND MARINAS IN THE AREA WHICH WILL AVOID OR LESSEN ADVERSE EFFECTS.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: UNPUB

DESCRIPTORS: CR 1, SHELLFISH, FISH, HARBOR, BULKHEAD, BREAKWATER

****
REF. NO.-0267

STONE, R.B. COSTON, L.C. MOSS D.E. CROSS, F.A. 1973.

TIRE REEFS: HABITAT IMPROVEMENT OR POLLUTION.

TALK GIVEN AT N.C. ACADEMY OF SCIENCE, APRIL 1973. 7 PP.

A STUDY WAS CONDUCTED USING BASS AND PANFISH IN THE LABORATORY TO DETERMINE WHAT AFFECTS ARTIFICIAL TIRE REEFS HAVE ON THE LEVEL OF PCB'S INSECTICIDES OR TRACE METALS IN FISH. NO APPARENT RELATIONSHIP BETWEEN TIRES AND CONCENTRATIONS OF THESE PARAMETERS WAS DETECTED. IT IS CONCLUDED THAT TIRE REEFS EFFECTIVELY INCREASE THE FAVORABLE HABITAT OF AN AREA AND ALLOW FOR INCREASES IN THE STANDING CROP OF FISHES AND INVERTEBRATES.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: UNPUB

DESCRIPTORS: REFF, RECREATION, HABITAT, FISH

****
REF. NO.-0160

STUART, T.A. 1957.

REF. NO.-0160 (CONTINUED)

THE INFLUENCE OF DRAINAGE WORKS, LEVEES, DYKES, DREDGINGS, ETC. ON THE AQUATIC ENVIRONMENT AND STOCKS.

PROC. I.U.C.N. TECH MEET., ATHENS 4:337-345.

THIS PAPER DEALS PRIMARILY WITH THE CONSEQUENCES TO SALMONID STOCKS, THEIR FOOD SUPPLIES, SHELTER, ACCESS TO AND FROM SPAWNING GROUNDS, FOLLOWING DRAINAGE ACTIVITIES. BOTH BENEFICIAL AND DELETERIOUS EFFECTS OF DRAINAGE WORKS ARE EXAMINED AND COMPARED WITH CONDITIONS OBTAINED IN NATURAL WATERS. THE POSSIBILITY OF COMBINING THE DESIRABLE FEATURES OF BOTH SYSTEMS WITH A VIEW TO CONSERVATION AND IMPROVEMENT OF STOCKS IN ARTIFICIAL CHANNELS IS DISCUSSED AND SUGGESTIONS ARE MADE AND EXPERIMENTS DESCRIBED WHICH ENDEAVOR TO ACHIEVE THIS RESULT WITHOUT INTERFERENCE WITH BUT POSSIBLY WITH BENEFIT TO OTHER LEGITIMATE USES OF LAND AND WATER. NO CONCLUSIONS CAN BE MADE PENDING RESULTS OF CONTINUING STUDIES.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0482

SUTKO, A.A. HADEN, E.L. 1974.

THE EFFECT OF SURGE, HEAVE AND PITCH ON THE PERFORMANCE OF A FLOATING BREAKWATER.

PP. 41-53 IN PROC. FLOATING BREAKWATERS CONFERENCE, NEWPORT, RI. TECH. SER. NO. 24 (Q.V. KOWALSKI, 1974A).

LABORATORY WORK CONCERNING THE EFFECT OF BREAKWATER AND WAVE VARIABLES ON THE PERFORMANCE OF A FLOATING BREAKWATER WAS REPORTED AT THE 1973 OFFSHORE TECHNOLOGY CONFERENCE. THIS PAPER DESCRIBES AN EXTENSION OF THAT WORK AND CENTERS ON THE RELATIVE EFFECTS OF BREAKWATER SURGE, HEAVE, AND PITCH. PRIMARY EMPHASIS IS ON THE WAY THESE MOTIONS AFFECT WAVE TRANSMISSION. WAVE REFLECTION AND ENERGY DISSIPATION. EXPERIMENTAL WORK WAS CARRIED OUT IN THE CONTINENTAL OIL COMPANY LABORATORY WAVE TANK. THE RESULTS SHOW THAT SURGE IS THE PRIMARY CAUSE OF WAVE TRANSMISSION. HEAVE AND PITCH ARE MUCH LESS INVOLVED. THESE CONCLUSIONS ARE BASED PRIMARILY ON TESTS WHERE ONLY ONE MOTION WAS ALLOWED, BUT THEY ARE REINFORCED BY THE 'TWO' MOTION TESTS. THE PRIMARY REASON FOR THE UNDESIRABLE EFFECT OF SURGE APPEARS TO LIE IN THE DECREASED ENERGY DISSIPATION WHEN THIS MOTION IS PRESENT. THERE IS ALSO A LESSER INFLUENCE DUE TO SLIGHTLY DECREASED WAVE REFLECTION. THE IMPORTANCE OF BREAKWATER MOTION IS FURTHER EMPHASIZED IN THOSE TESTS IN WHICH IT IS RESTRICTED TO PITCH OR HEAVE. IN THESE CASES, THERE IS LESS TOTAL ENERGY TRANSMITTED THAN IS ORIGINALLY CONTAINED IN THE ONCOMING WAVE BELOW THE BASE OF THE BREAKWATER. (NTIS MODIFIED AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0464

SWEENEY, W.D. O'SHEI, D.M. 1977.

LETTERS CONCERNING CORPS OF ENGINEERS AND FISH AND WILDLIFE SERVICE POLICIES AND PROCEDURES IN THE SACRAMENTO DISTRICT.

PROVIDED BY L. SHANKS, USFWS.

THE CUMULATIVE EFFECTS OF A NUMBER OF PRIVATE SHORELINE STRUCTURES OFTEN RESULT IN A TOTAL CHANGE IN THE CHARACTER OF A SHORELINE. THOUGH THE FISH AND WILDLIFE SERVICE AND THE CORPS OF ENGINEERS BOTH ARE CONCERNED WITH SUCH STRUCTURES, THEIR CONCERNS STEM FROM DIFFERENT VIEWPOINTS. BOTH VIEWPOINTS ARE BRIEFLY DISCUSSED.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: UNPUB

DESCRIPTORS: CUMULATIVE EFFECTS

****
REF. NO.-0008

TAYLOR, J.L. SALOMAN, C.H. 1968.

SOME EFFECTS OF HYDRAULIC DREDGING AND COASTAL DEVELOPMENT IN BOCA CIEGA BAY, FLORIDA.

U.S. FISH WILDL. SERV. FISH BULL. 67(2): 213-242.

FILLING OF 1,400 HECTARES (3,500 ACRES) OF BAY BY HYDRAULIC DREDGING HAS REDUCED THE AREA OF BOCA CIEGA BAY, FLA. BY ABOUT 20 PERCENT SINCE 1950. AN ESTIMATE OF THE ANNUAL STANDING CROP DESTROYED IS 1,133 METRIC TONS(798 KG. PER HECTARE, DRY WHOLE WEIGHT) OF SEA GRASS AND ABOUT 1,812 METRIC TONS (1,277 KG. PER HECTARE, DRY WEIGHT) OF ASSOCIATED INFAUNA. IN TERMS OF ANNUAL PRODUCTION. THE LOSS OF BIOLOGICAL RESOURCES IS FAR GREATER-MINIMUM ESTIMATES ARE 25,841 METRIC TONS OF SEA GRASS, 73 METRIC TONS OF FISHERY PRODUCTS, AND 1,091 METRIC TONS OF INFAUNA EXCLUSIVE OF MEIOFAUNA. NATURAL AREAS REMAINING IN THE BAY SUPPORT LOCAL AND OFFSHORE FISHERIES AND ARE OF VALUE FOR RECREATION, PUBLIC UTILITIES, COMMERCE, AND INDUSTRY. AT AN ESTIMATED VALUE OF $988 PER HECTARE PER YEAR, WORTH OF THE ESTUARINE AREA ALREADY ELIMINATED IS $1.4 MILLION ANNUALLY. IN ADDITION, INESTIMABLE SECONDARY LOSSES OCCUR, PRINCIPALLY FROM SEDIMENTATION, TURBIDITY, AND DOMESTIC SEWAGE. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0048

TERICH, T.A. 1975.

PROPERTY OWNER RESPONSE TO BEACH AND SHORE BLUFF EROSION IN NORTHERN PUGET SOUND.

REF. NO.-0048 (CONTINUED)

SHORE AND BEACH. 43(1): 30-34.

ALTHOUGH PUGET SOUND IS A RELATIVELY SMALL BODY OF SALT WATER WITH LIMITED FETCHES, WINDS WITHIN THE SOUND DO GENERATE WAVES OF SUFFICIENT ENERGY TO ERODE BEACHES AND BLUFFS. HOWEVER, EROSION OF PUGET SOUND SHORELINES IS NOT SOLELY A PRODUCT OF WAVE ACTION, BUT ALSO OF GEOLOGIC, METEOROLOGIC, AND HYDRAULIC PROCESSES AIDED AT TIMES BY RESULTS OF UNWISE LAND MANAGEMENT. THE PURPOSE OF THIS PAPER IS TO EXAMINE SOME OF THE CAUSES OF BEACH AND BLUFF EROSION IN PUGET SOUND AND WAYS IN WHICH LAND OWNERS RESPOND TO THE LOSS OF THEIR PROPERTY BY BUILDING GROINS AND BULKHEADS.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: EROSION, PROTECT, GROIN, BULKHEAD, CR 1, LITTORAL PROCESSES

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REF. NO.-0054

TERICH, T.A. KOMAR, P.D. 1973.

DEVELOPMENT AND EROSION HISTORY OF BAYOCEAN SPIT, TILLAMOOK, OREGON.

OREGON STATE UNIVERSITY SCHOOL OF OCEANOGRAPHY, CORVALLIS. OSU REFERENCE 73-16. 157PP.

BAYOCEAN SAND SPIT LIES ALONG THE NORTHERN OREGON COAST APPROXIMATELY 70 MILES SOUTH OF THE COLUMBIA RIVER. EROSION APPEARED TO HAVE BEEN INITIATED BY THE CONSTRUCTION AND SUBSEQUENT LENGTHENING OF A NORTH JETTY TO THE TILLAMOOK BAY CHANNEL. RAPID SAND DEPOSITION NORTH OF THE NORTH JETTY INDICATED THAT THE STRUCTURE HAD BLOCKED A PREDOMINANT NORTH TO SOUTH LONGSHORE SAND TRANSPORT, THUS DEPRIVING THE SPIT OF SAND AND RESULTING IN EROSION. ANALYSIS OF HISTORICAL SHORELINE CHANGES AND AERIAL PHOTOGRAPHS TAKEN IN 1971, 1972 AND 1973 SHOW THAT SAND ERODED FROM BEACHES TO THE NORTH AND TO THE SOUTH OF THE JETTY HAS BEEN TRANSPORTED AND DEPOSITED IMMEDIATELY ADJACENT TO BOTH SIDES OF THE STRUCTURE. THIS SYMMETRICAL PATTERN OF EROSION AND DEPOSITION ON BOTH SIDES OF THE JETTY INDICATES A REVERSING LONGSHORE SAND TRANSPORT WITH A NEAR ZERO NET ANNUAL DRIFT. THE SHORELINE CONDITIONS AT BAY OCEAN DEMONSTRATE THAT BEACH EROSION CAN RESULT FROM THE CONSTRUCTION OF A JETTY TRANSVERSE TO A SEASONALLY REVERSING LONGSHORE SAND TRANSPORT WITH A NEAR-ZERO NET DRIFT. (NTIS MODIFIED AUTHOR ABSTRACT)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: JETTY, STABILIZE, LITTORAL PROCESSES, CR 1

****
REF. NO.-0187

TERRY, O.W. UDELL, H.F. ZARUDSKY, J.D. 1974.

TIDAL MARSH RESTORATION AT HEMPSTEAD, LONG ISLAND.

REF. NO.-0187 (CONTINUED)

SHORE AND BEACH 42(2):36-39.

THIS ARTICLE DESCRIBES A PILOT PROJECT IN MARSH PLANTING USING SPARTINA ON A SUBSTRATE OF DREDGE SPOILS. THREE BASIC PLANTING METHODS WERE EMPLOYED: SEED, SEEDLINGS, AND PLUGS. ALL THREE PLANTING METHODS HAD SOME DEGREE OF SUCCESS AND RESULTED IN AT LEAST PARTIAL SURVIVAL. HOWEVER, PLUGS WERE MUCH LESS SUCCESSFUL THAN SEEDLINGS ON THE WHOLE AS WELL AS BEING MORE TIME CONSUMING AND LABORIOUS BOTH TO DIG AND TO PLANT. THE ARTICLE CONCLUDES THAT THE USE OF SEEDLINGS IS THE MOST WIDELY APPLICABLE.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: DREDGE/FILL, PROTECT, SUBSTRATE, LAND PLANTS, CR 7

****
REF. NO.-0061

THOMPSON, J.R. 1973.

ECOLOGICAL EFFECTS OF OFFSHORE DREDGING AND BEACH NOURISHMENT: A REVIEW.

U.S. ARMY CORPS OF ENGINEERS. CERC. MISC. PAP. NO. 1-73 48 PP.

A REVIEW OF ECOLOGICAL EFFECTS OF OFFSHORE DREDGING IS PRESENTED, BASED ON LITERATURE REVIEW AND PERSONAL CONTACTS, TO PROVIDE A FRAMEWORK FOR DETERMINATION OF NEED FOR FURTHER KNOWLEDGE. IN GENERAL, LITTLE CONCRETE EFFORT AIMED SPECIFICALLY AT THE DETERMINATION OF EFFECTS OF OFFSHORE DREDGING WAS UNCOVERED, ALTHOUGH BASIC ECOLOGICAL WORKS THAT ARE GENERALLY APPLICABLE ARE AVAILABLE. MUCH ADDITIONAL RESEARCH OF BASIC, BUT PRACTICAL, ORIENTATION IS NEEDED TO APPROACH FULL UNDERSTANDING. REPORT SHOWS THAT THE BEACH MAY BE DIVIDED INTO THREE ZONES ON THE BASIS OF MOISTURE AND BIOTA FOUND, AND DESCRIBES THE POSSIBLE EFFECTS ON THESE BIOTA RESULTING FROM OFFSHORE DREDGING AND DEPOSITION OF SEDIMENTS ON A BEACH. BACKGROUND DESCRIPTIVE MATERIAL AND IMPACTS ON BOTH OFFSHORE DREDGED AREAS AND NOURISHED BEACHES, AND SUGGESTIONS FOR FURTHER RESEARCH FOLLOW. A SELECTED BIBLIOGRAPHY IS INCLUDED. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: DREDGE/FILL

****
REF. NO.-0307

THOMSEN, A.L. WOHLT, P.E. HARRISON, A.S. 1972.

RIPRAP STABILITY ON EARTH EMBANKMENTS TESTED IN LARGE AND SMALL SCALE WAVE TANKS.

U.S. ARMY CORPS OF ENGINEERS. CERC TECH. MEMO NO. 37. 115 PP.

MODELS OF RIPRAP REVETMENTS WERE CONSTRUCTED IN LARGE WAVE TANKS FOR TESTING TO AID IN THE

REF. NO.-0307 (CONTINUED)

DESIGN OF RIPRAP ON IMPERVIOUS EARTH EMBANKMENTS. BOTH STONE AND TRIBARS WERE TESTED AS ARMOR AND CORE. BEDDING AND SPALLS WERE OF VARIOUS SORTS. REVETMENTS WERE TESTED USING A SERIES OF SMALL WAVES TO 'SEASON' THE ARMOR (REORIENTING LESS STABLE ARMOR UNITS) FOLLOWED BY PROGRESSIVELY LARGER WAVES IN 10 PERCENT INCREMENTS. SEVERAL DIFFERENT REVETMENT FACE SLOPES WERE TESTED. MOVEMENT OF THE ARMOR WAS MONITORED AND AVERAGE CROSS SECTION AREA OF DAMAGE WAS DETERMINED. ZERO-DAMAGE STABILITY RESULTS INDICATED THAT PLACED ARMOR IS MORE STABLE THAN DUMPED ARMOR AND TRIBARS ARE GENERALLY MORE STABLE THAN STONE. EACH MODEL HAD SOME STABILITY BEYOND ZERO-DAMAGE. THIS RESERVE STABILITY IS PROBABLY DEPENDENT ON ARMOR THICKNESS. STABILITY ALSO INCREASES WITH FLATTER EMBANKMENT SLOPES.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0026

TRAUTMAN, M.B. 1939.

THE EFFECTS OF MAN-MADE MODIFICATIONS ON THE FISH FAUNA IN LOST AND GORDON CREEKS, OHIO, BETWEEN 1887-1938.

OHIO J. SCI. 39(5): 275-288.

TO DEMONSTRATE THE DELETERIOUS EFFECTS OF DREDGING THE AUTHOR COMPARES SEINING RESULTS OBTAINED IN 1938 TO THOSE MADE IN 1887. THE PHYSICAL CHANGES OF VARIOUS PORTIONS OF THE CREEKS EXAMINED DUE TO DREDGING ARE DISCUSSED. THE ARTICLE ALSO DEALS WITH THE IMPACT OF DREDGING OF CREEKS ON FISH SPECIES COMPOSITION AND ABUNDANCE.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0495

TREADWELL, G.T. KYCEK, R.V. 1971.

REGIONAL APPLICATION OF ASCE MANUAL 50.

JOURNAL OF THE WATERWAYS, HARBORS AND COASTAL ENGINEERING DIVISION 97(WW1):123-130.

THIS PAPER IS A REVIEW OF THE GUIDELINES SET FORTH IN MANUAL NO. 50 IN TERMS OF THEIR APPLICATION TO SMALL CRAFT HARBORS IN THE PACIFIC NORTHWEST. TWO METHODS USED TO ESTIMATE CAPACITY OF PROPOSED HARBOR. IT IS POINTED OUT THAT THE PLANNER MUST MAKE CERTAIN THAT CONSTRUCTION WILL NOT DESTROY AN IRREPLACEABLE NATURAL RESOURSE TO THE DETRIMENT OF THE PUBLIC. THE BEST METHODS FOR ESTIMATING THE QUANTITY OF LITTORAL DRIFT AND ITS EFFECT ON THE

INCLUDED COASTLINE IS TO COMPARE SUCCESSIVE SURVEYS BY THE U.S. COAST AND GEODETIC SURVEY. BERTHING ARRANGEMENTS ARE DISCUSSED AND METHODS OF DECK FRAMING ARE ILLUSTRATED. THE NEED FOR WASTE WATER DISPOSAL AND ELECTRICAL SERVICE ARE EXPLAINED. IT IS CONCLUDED THAT PROPER PLANNING OF SMALL BOAT HARBORS OR MARINAS CAN BE SATISFACTORILY PERFORMED USING ASCE MANUAL NO. 50 AS A GUIDE. ADDITONAL EMPHASIS MUST BE PLACED ON ECOLOGICAL, ENVIRONMENTAL, AND ECONOMIC CONSIDERATIONS, IN ORDER TO PROVIDE MARINA FACILITIES TO BENEFIT ALL.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: HARBOR, LITTORAL PROCESSES, CR 1

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REF. NO.-0022

TRENT, L. PULLEN, E.J. PROCTOR, R. 1976.

ABUNDANCE OF MACROCRUSTACEANS IN A NATURAL MARSH AND A MARSH ALTERED BY DREDGING.

FISH. BULL. 74(1): 195-200.

INDICES OF ABUNDANCE OF MACROCRUSTACEANS DURING MARCH-OCTOBER 1969 IN WEST BAY, TEX., WERE DETERMINED FOR DAY AND NIGHT AND STATISTICALLY COMPARED BETWEEN 1) A NATURAL MARSH AREA, 2) UPLAND AND BAYWARD CANAL AREAS OF A HOUSING DEVELOPMENT, AND 3) AN OPEN BAY AREA. SIGNIFICANCE LEVELS OF 5% OR 1% WERE USED IN THE STATISTICAL COMPARISONS. CATCHES OF BROWN SHRIMP, PENAEUS AZTECUS; WHITE SHRIMP, P. SETIFERUS; BLUE CRAB, CALLINECTES SAPIDUS; AND PINK SHRIMP, P. DUORARUM, WERE SIGNIFICANTLY GREATER AT NIGHT THAN DURING THE DAY AT ONE OR MORE STATIONS IN THE MARSH. MORE GRASS SHRIMP, PALAEMONETES SP., WERE CAUGHT AT NIGHT THAN DURING THE DAY, BUT THE DIFFERENCES WERE NOT STATISTICALLY SIGNIFICANT. INDIVIDUALS OF EACH SPECIES APPEARED TO MIGRATE INTO THE MORE SHALLOW AREAS OF THE MARSH AT NIGHT. AT NIGHT, BROWN SHRIMP AND BLUE CRABS WERE SIGNIFICANTLY MORE ABUNDANT IN THE MARSH AND BAYWARD CANAL AREAS THAN IN THE UPLAND CANAL AND BAY AREAS, WHITE SHRIMP WERE SIGNIFICANTLY MORE ABUNDANT IN THE MARSH AREA THAN IN THE OTHER THREE AREAS, AND PINK SHRIMP WERE SIGNIFICANTLY MORE ABUNDANT IN THE MARSH THAN IN THE UPLAND AND BAYWARD CANAL AREAS. DURING THE DAY, BROWN SHRIMP WERE SIGNIFICANTLY MORE ABUNDANT IN THE BAYWARD CANAL AREA THAN IN THE UPLAND CANAL AND BAY AREAS, WHILE PINK SHRIMP WERE SIGNIFICANTLY MORE ABUNDANT IN THE MARSH AREA THAN IN THE UPLAND CANAL AREA. THE GENERALLY LOWER CATCHES OF EACH SPECIES IN THE OPEN BAY AND UPLAND CANAL AREAS WHEN COMPARED WITH THE MARSH AND BAYWARD CANAL AREAS WERE ATTRIBUTED TO: 1) PERMANENT LOSS OF INTERIDAL VEGETATION IN THE HOUSING DEVELOPMENT; 2) LOW ABUNDANCE OF DETRITAL MATERIAL AND BENTHIC MACROINVERTEBRATES IN THE OPEN BAY AND UPLAND CANAL AREAS; AND 3) EUTROPHIC CONDITIONS IN THE UPLAND CANAL AREA. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: BULKHEAD, CR 3

****
REF. NO.-0034

TRENT, W.L. PULLEN, E.J. MOORE, D. 1972.

WATERFRONT HOUSING DEVELOPMENTS: THEIR EFFECT ON THE ECOLOGY OF A TEXAS ESTUARINE AREA.

NATIONAL MARINE FISHERIES SERVICE BIOLOGICAL LABORATORY, GALVESTON, TEXAS. CONTRIB. NO. 311 PP. 411-417.

LARGE AREAS OF SHALLOW BAYS ARE BEING DEVELOPED IN TEXAS FOR WATERFRONT HOUSING DEVELOPMENTS. 700 MILES OF FEDERAL NAVIGATION CHANNELS HAVE BEEN DEEPENED, ALTERING 5,265 HA OF BAY BOTTOM, DESTROYING 2,830 HA OF SHALLOW BAY AND COVERED 9,315 HA OF BRACKISH MARSH. THIS DEVELOPMENT INVOLVES DREDGING, BULKHEADING AND FILLING. THIS CAUSES ENVIRONMENTAL CHANGES WHICH INCLUDE 1) REDUCTION IN SHORE ZONE ACREAGE AND MARSH VEGETATION, 2) CHANGES IN MARSH DRAINAGE PATTERNS AND NUTRIENT INPUT AND 3) CHANGES IN WATER DEPTH AND SUBSTRATES. THE STUDIES PRESENTED HERE COMPARE NATURAL AND ALTERED AREAS WITH RESPECT TO 1) SUBSTRATES, 2) SELECTED HYDROGRAPHIC VARIABLES, 3) PHYTOPLANKTON PRODUCTIVITY, 4) RELATIVE ABUNDANCE OF BENTHIC MACRO-INVERTEBRATES, FISHES AND CRUSTACEANS, AND 5) THE SETTING, GROWTH AND MORTALITY OF THE AMERICAN OYSTER (CROSSOSTREA VIRGINICA). WEST BAY, TEXAS WAS THE STUDY AREA.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0332

TRIGOM. 1974.

A SOCIO-ECONOMIC AND ENVIRONMENTAL INVENTORY OF THE NORTH ATLANTIC REGION: INCLUDING THE OUTER CONTINENTAL SHELF AND ADJACENT WATERS FROM SANDY HOOK, NEW JERSEY, TO BAY OF FUNDY.

THE RESEARCH INSTITUTE OF THE GULF OF MAINE SOUTH PORTLAND, MAINE.

A TEN MONTH STUDY BY TRIGOM WAS CONDUCTED TO GATHER AND INVENTORY THE EXISTING ENVIRONMENTAL AND SOCIO-ECONOMIC DATA OF THE COASTAL ZONE AND ADJACENT OUTER CONTINENTAL SHELF FROM SANDY HOOK, NEW JERSEY TO BAY OF FUNDY. THESE DATA WERE BASED ON THE REQUIREMENTS FOR IMPACT ASSESSMENTS PRIOR TO LEASING OFFSHORE AREAS FOR OIL, GAS, AND MINERAL EXPLORATION AND PRODUCTION. RESEARCH NEEDS ARE ALSO DISCUSSED. (MODIFIED AUTHOR ABSTRACT)

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: DREDGE/FILL, CR 7, RESEARCH NEEDS

****
REF. NO.-0233

TWENHOFEL, W.S. 1952.

REF. NO.-0233 (CONTINUED)

RECENT SHORE-LINE CHANGES ALONG THE PACIFIC COAST OF ALASKA.

AMERICAN JOURNAL OF SCIENCE 250:523-548.

ELEVATED FOSSIL-BEARING MARINE BEACHES AND DELTAS ALONG THE PACIFIC COAST OF ALASKA INDICATE A GENERAL UPLIFT OF THE LAND RELATIVE TO THE SEA SINCE MAXIMUM GLACIATION. IN SOUTHEASTERN ALASKA THE THE RELATIVE UPLIFT IS ABOUT 500 FEET, WHEREAS ELSEWHERE THE MAXIMUM KNOWN UPLIFT IS 100 FEET ON THE ALASKA PENINSULA, 60 FEET IN COOK INLET, AND ALMOST 50 FEET AT YAKUTAT BAY. PRESENT EVIDENCE IS INSUFFICIENT TO CONCLUDE WHETHER THE SHORE-LINE UPLIFT OF THE LAND RELATIVE TO THE SEA WAS CAUSED PRINCIPALLY BY POST GLACIAL REBOUND OF THE EARTH'S CRUST AS A RESULT OF DEGLACATION OR PRINCIPALLY BY OROGENIC MOVEMENT. A GENERAL LOWERING OF SEA LEVEL ALSO MAY BE INVOLVED. (AUTHOR ABSTRACT)

NATURE OF REFFRENCE: GENERAL

TYPE OF REFERENCE: PUR

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0448

UNIVERSITY OF MICHIGAN, LAKE HYDRAULICS LABORATORY. 1952.

LOW COST SHORE PROTECTION FOR THE GREAT LAKES.

(1975 REPRINT)UNIV . MICHIGAN AND MICHIGAN WATER RESOURCES COMM. PAGING VARIOUS.

THIS BULLETIN PROVIDES INFORMATION ON LOW-COST METHODS OF PROTECTION AGAINST SHORE EROSION. RECOMMENDTIONS MADE ARE BASED ON OBSERVATIONS MADE DURING A TWO-YEAR PERIOD. IT RECOMMENDS FURTHER RESEARCH WHICH CAN BE FOUND IN THE VARIOUS LATER PUBLICATIONS DESCRIBING MICHIGAN'S DEMONSTRATION EROSION CONTROL PROGRAM.

NATURE OF REFFRENCE: GENERAL

TYPE OF REFERENCE: PUR

DESCRIPTORS: CR 8, ECONOMICS, EROSION, GROIN, REVETMENT, BULKHEAD

****
REF. NO.-0001

U.S. ARMY CORPS OF ENGINEERS. 1975b.

GUIDELINES FOR MONITORING SHORE PROTECTION STRUCTURES IN THE GREAT LAKES.

U.S. ARMY CORPS OF ENGINEERS CERC MISC. PAPER 2-75. 38 PP.

THE EXTENT OF WAVE DAMAGE TO SHORES IS DIFFICULT TO PREDICT; IT IS ADVISABLE TO OBSERVE THE BEHAVIOR OF THE SHORE TO DETERMINE IF SOME PROTECTIVE ACTION IS REQUIRED. AFTER INSTALLATION OF A SHORE PROTECTION STRUCTURE IT IS IMPORTANT TO CONTINUE MONITORING SHORE BEHAVIOR; AND

REF. NO.-0001 (CONTINUED)

ALSO TO INSPECT FOR STRUCTURAL CHANGES TO DETERMINE IF THE STRUCTURE IS FUNCTIONING AS DESIGNED. OPTIMUM AND MINIMUM PLANS FOR RECORDING SHORELINE CHANGES AND MONITORING GROINS, SEAWALLS, REVETMENTS, AND OFFSHORE BREAKWATERS ARE GIVEN. SIMPLE SHORE EROSION COMPUTATIONS AND A DATA ANALYSIS PROGRAM ARE PRESENTED. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: EROSION, PROTECT, GROIN, BULKHEAD, REVETMENT, BREAKWATER

****
REF. NO.-0005

U.S. ARMY CORPS OF ENGINEERS. 1971a.

EFFECTS OF ENGINEERING ACTIVITIES ON COASTAL ECOLOGY.

REP. TO THE OFFICE OF THE CHIEF OF ENGINEERS, CORPS OF ENGINEERS, U.S. ARMY 48P.

BRIEF DESCRIPTIONS ARE GIVEN OF A NUMBER OF ENGINEERING ACTIVITIES AND THEIR EFFECTS ON COASTAL ECOLOGY. HOWEVER, MOST OF THE PAPER IS DEVOTED TO DISCUSSING RESEARCH NEEDS APROPOS EACH STRUCTURE OR ACTIVITY, RATHER THAN SPECIFIC EFFECTS. NO CONCLUSIONS ARE DRAWN OTHER THAN THAT THERE IS A GREAT NEED FOR FURTHER QUANTITATIVE RESEARCH.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: JETTY, GROIN, SEDIMENTATION, RESEARCH NEEDS

****
REF. NO.-0036

U.S. ARMY CORPS OF ENGINEERS. 1971b.

NATIONAL SHORELINE STUDY. SHORE PROTECTION GUIDELINES.

DEPARTMENT OF THE ARMY. 62 PP.

THE PUBLICATION IS A GENERAL GUIDELINE FOR THOSE INTERESTED IN SUITABLE AND ECONOMICAL METHODS OF SHORE PROTECTION. IT IS OF VALUE TO THOSE WHO REQUIRE INFORMATION ON FORCES AFFECTING A SPECIFIC SHORE AREA. THE INFORMATION IS GENERAL IN NATURE. IT IS OF PARTICULAR INTEREST OF OFFICIALS TO AVOID APPROVING INADEQUATE MEASURES WHICH APPEAR INEXPENSIVE BUT PROVE COSTLY FOR LONG-RANGE PLANNING. IT AIDS IN SELECTING THE BEST PLAN FOR THE REQUIRED PROTECTION. SHORE PROCESSES AND NATURAL PROTECTIVE FEATURES ARE STRESSED FOR THE PROPERTY OWNER, ALONG WITH THE HAZARDS OF BUILDING IN A FLUCTUATING ZONE. IT IS NECESSARY TO REGARD THE BEACH AREA AS MUCH A PART OF THE SEA AS OF THE LAND AND REALIZE THAT INUNDATION DEPENDS ON BEACH DIMENSIONS RELATIVE TO THE INTENSITY OF WATER MOTION TO WHICH IT IS SUBJECTED. NATURAL PROTECTIVE FEATURES AND COASTAL STRUCTURES ENHANCE THE SHORELINE AND PREVENT EROSION.

NATURE OF REFERENCE: GENERAL

REF. NO.-0036 (CONTINUED)

TYPE OF REFERENCE: PUB

DESCRIPTORS: EROSION, REVETMENT, BULKHEAD, GROIN, JETTY, BREAKWATER, HARBOR, PILING, PROTECT, BEAUTIFY, STABILIZE, HARBOR, RECREATION, LITTORAL PROCESSES, ECONOMICS

****
REF. NO.-0039

U.S. ARMY CORPS OF ENGINEERS. 1963.

BEACH PROFILE AS AFFECTED BY VERTICAL WALLS.

U.S. ARMY CORPS OF ENGINEERS. BEB TECH. MEMO. NO. 134. 41 PP.

THIS MEMORANDUM PRESENTS THE RESULTS OF A LABORATORY MODEL STUDY TO INVESTIGATE THE EQUILIBRIUM BEACH PROFILE RESULTING WHEN VERTICAL WALLS OF VARIOUS TOP ELEVATIONS ABOVE OR BELOW THE ELEVATION OF THE UNDISTURBED WATER SURFACE (RELATIVE TO INCIDENT WAVE HEIGHT) WERE LOCATED IN THE BEACH ZONE AND SUBJECTED TO WAVE ACTION. AS MIGHT BE EXPECTED WALLS OF HIGHEST RELATIVE TOP HEIGHT, BY ALLOWING LESS ENERGY TO PASS OVER THE WALL, RESULTED IN GREATEST SCOUR IN FRONT OF THE WALL, WHILE LOWER WALLS RESULTED IN INCREASED SCOUR DIMENSIONS BEHIND THE WALL. EFFECTS OF WAVE STEEPNESS AND GRAIN SIZE OF BEACH MATERIAL WERE ALSO INVESTIGATED. IT IS BELIEVED THAT THE RESULTS OF THIS INVESTIGATION COULD PROVE USEFUL IN CONSIDERING PRACTICAL PROBLEMS INVOLVING VERTICAL-FACE WALLS, ALTHOUGH CARE MUST BE EXERCISED IN INTERPRETATION FOR PROTOTYPE USE AS APPRECIABLE SCALE EFFECT MAY BE INVOLVED.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: BULKHEAD, PROTECT

****
REF. NO.-0067

U.S. ARMY CORPS OF ENGINEERS. UNDATED.

HELP YOURSELF.

NORTH CENTRAL DIVISION, CHICAGO, ILLINOIS.

THIS SHORE PROTECTION BROCHURE IS A GENERAL GUIDE TO AID IN SELECTING THE PROPER TYPE OF PROTECTIONS. PLANNING CONSIDERATION, CONSTRUCTION AND MAINTENANCE GUIDELINES, COSTS, AND VARIOUS DESIGNS ARE PRESENTED.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: CR 8, EROSION, PROTECT, BULKHEAD, REVETMENT, GROIN, BREAKWATER

****
REF. NO.-0097

U.S. ARMY CORPS OF ENGINEERS. 1964.

LAND AGAINST THE SEA.

U.S. ARMY CORPS OF ENGINEERS. CERC MISC. PAP. NO. 4-64. 43 PP.

DESCRIBED IN NON-TECHNICAL LANGUAGE ARE THE ORIGIN AND NATURE OF OUR SEA COASTS, THE FORCES TO WHICH THOSE COASTS ARE EXPOSED, THE BEHAVIOR OF THE SHORES UNDER EXPOSURE TO THOSE FORCES, THE EFFECTS THEREON OF DEVELOPMENT BY MAN, AND THE CHARACTERISTICS OF METHODS FOR THE PROTECTION AND IMPROVEMENT OF THE SHORE. ALSO DESCRIBED ARE THE ROLES OF THE LOCAL, STATE, AND FEDERAL GOVERNMENTS IN PROVIDING FOR SOUND DEVELOPMENT, PROTECTION AND IMPROVEMENT OF THE SHORE, AND DISCUSSION OF THE NEED OF LONG-RANGE PLANNING FOR PRESERVATION OF OUR COASTAL RESORCES.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: BULKHEAD, GROIN, JETTY, BREAKWATER, REVETMENT

****
REF. NO.-0158

U.S. ARMY CORPS OF ENGINEERS. 1953.

STABILITY OF RUBBLE-MOUND BREAKWATERS, HYDRAULIC MODEL INVESTIGATION.

U.S. ARMY CORPS OF ENGINEERS. WES TECH. MEMO. NO. 2-365. 66 PP.

A HYDRAULIC MODEL STUDY OF THE STABILITY OF RUBBLE-MOUND BREAKWATERS WAS CONDUCTED. THE INVESTIGATION WAS CONDUCTED IN A 5 BY18 BY119 FOOT CONCRETE FLUME. MODELS WITH LINEAR SCALES OF 1:30, 1:45 AND 1:60 WERE USED. IT WAS DETERMINED THAT MODEL-PROTOTYPE TRANSFERENCE EQUATIONS BASED UPON THE FROUDIAN RELATIONSHIPS WERE APPLICABLE TO ALL IMPORTANT MOTION OCCURRENCES AFFECTING THE STABILITY OF RUBBLE-MOUND BREAKWATERS. DATA WAS OBTAINED ON THE STABILITY OF COMPONENT BREAKWATER MATERIALS DURING VARIOUS STAGES OF CONSTRUCTION, THE ACCURACY OF THE IRIBARREN AND EPSTEIN-TYRRELL FORMULAS FOR DESIGN OF RUBBLE BREAKWATERS, COEFFICIENTS OF REFLECTION OF WAVES FROM RUBBLE BREAKWATERS, AND THE EFFECT OF ANGLE OF INCIDENCE OF WAVE ATTACK ON THE STABILITY OF RUBBLE BREAKWATERS. THE MOST IMPORTANT FINDINGS OF THE INVESTIGATION CONCERNED THE USE OF IRIBARREN'S FORMULA FOR DESIGN OF RUBBLE BREAKWATERS THE COEFFICIENT IN IRIBARREN'S FORMULA WAS FOUND TO VARY APPRECIABLY WITH SLOPE OF THE SEASIDE FACE. THE FORMULA IS BELIEVED SUFFICIENTLY ACCURATE FOR DESIGN OF RUBBLE BREAKWATERS IF USED IN CONJUCTION WITH COEFFICIENTS SUCH AS THOSE DEVELOPED DURING THE MODEL TESTS.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: BREAKWATER

****
REF. NO.-0185

U.S. ARMY CORPS OF ENGINEERS. 1973a.

NATIONAL SHORELINE STUDY.

U.S. GOVERNMENT PRINTING OFFICE. VOLS. I-V.

IN 1968, THE 90TH CONGRESS AUTHORIZED THIS NATIONAL APPRAISAL OF SHORE EROSION AND SHORE PROTECTION. TO SATISFY THE PURPOSES OF THE AUTHORIZING LEGISLATION, A FAMILY OF 12 RELATED REPORTS HAS BEEN PUBLISHED. THEY ARE: REGIONAL INVENTORY REPORTS; SHORE PROTECTION GUIDELINES; SHORE MANAGEMENT GUIDELINES; AND REPORT ON THE NATIONAL SHORELINE STUDY. THE REPORT CONCERNS EROSION AND THE NEED FOR PROTECTION OF THE SHORELINE ZONE OF THE UNITED STATES,. THE SHORELINE ZONE OR SHORELANDS INCLUDE THE LAND, WATER, AND LAND BENEATH THE WATER IN CLOSE PROXIMITY TO THE SHORELINE. THEY REPRESENT A UNIQUE NATURAL RESOURCE, RICH IN AESTHETIC AND ECOLOGICAL VALUES; AND THEIR SCENIC ATTRACTIVENESS, MANY BEACHES AND ACCESS TO LARGE WATER AREAS PROVIDE OUTSTANDING RECREATIONAL OPPORTUNITIES. INCLUDED IN THIS REGIONAL INVENTORY REPORT IS VERY GENERAL INFORMATION ON THE PHYSICAL CHARCTERISTICS, NATURE AND EXTENT OF EROSION, IDENTIFICATION OF PROBLEM AREAS AND POSSIBLE REMEDIAL ACTION, OWNERSHIP, AND PRESENT AND FUTURE USE OF THE SHORE.

NATURE OF REFFRENCE: GENERAL

TYPE OF REFERENCE: PUR

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0196

U.S. ARMY CORPS OF ENGINEERS. 1976.

CERC AND BEB PUBLICATIONS LIST DECEMBER 1976.

U.S. ARMY CORPS OF ENGINEERS, FORT BELVOIR, VA.

INDEX OF PUBLICATIONS RESULTING FROM THE GENERAL INVESTIGATION OF TIDAL INLETS (GITI) PROGRAM, A JOINT CEPC-WES PROJECT; AND A LIST OF THE NATIONAL SHORELINE STUDIES THAT HAVE BEEN PUBLISHED BY THE U.S. ARMY CORPS OF ENGINEERS AS REPORTS AND GUIDELINES ON THE NATIONS SHORELINES.

NATURE OF REFFRENCE: GENERAL

TYPE OF REFERENCE: PUR

DESCRIPTORS: BIBLIOGRAPHY

****
REF. NO.-0357

U.S. ARMY CORPS OF ENGINEERS. 1977.

ENVIRONMENTAL ASSESSMENT: EASTPORT HARBOR, MAINE.

REF. NO.-0357 (CONTINUED)

EIA. U.S. ARMY CORPS OF ENGINEERS, NEW ENGLAND DIVISION, WALTHAM, MASS. 9 PP.

EASTPORT HARBOR LIES ON THE EASTERN SIDE OF MOOSE ISLAND, MAINE. THE HARBOR IS PROTECTED BY AN L-SHAPED BREAKWATER WHICH IS PARALLEL TO THE CENTRAL WATERFRONT FOR 485 FEET. THIS REPORT ASSESSES THE PROPOSED MAINTENANCE OF THE BREAKWATER AND THE ENVIRONMENTAL IMPACT OF THE PROPOSED ACTION.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: EIS

DESCRIPTORS: HARBOR, BREAKWATER, CR 7

****
REF. NO.-0385

U.S. ARMY CORPS OF ENGINEERS. 1975a.

ENVIRONMENTAL ASSESSMENT: REPAIRS TO THE LITTLE HARBOR BREAKWATER, NEWCASTLE, NEW HAMPSHIRE.

EIA. U.S. ARMY CORPS OF ENGINEERS, NEW ENGLAND DIV.,WALTHAM, MASS. 3 PP.

LITTLE HARBOR IS LOCATED BETWEEN RYE AND NEWCASTLE, NEW HAMPSHIRE. IT IS A SMALL, IRREGULARLY SHAPED TIDAL INLET SEPARATING THE ISLAND OF NEWCASTLE FROM THE MAINLAND. THIS REPORT EVALUATES THE IMPACT OF PROPOSED BREAKWATER REPAIR IN THE HARBOR. THERE ARE NO KNOWN ADVERSE ENVIRONMENTAL EFFECTS WHICH WOULD BE CAUSED BY THE RESTORATON OF THE TWO EXISTING BREAKWATERS.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: EIS

DESCRIPTORS: CR 7, BREAKWATER, HARBOR

****
REF. NO.-0436

U.S. ARMY CORPS OF ENGINEERS. 1975b.

SHORE PROTECTION MANUAL.

U.S. GOV. PRINTING OFFICE, WASHINGTON, D.C. 3 VOLS.

THIS PUBLICATION SUMMARIZES COASTAL ENGINEERING PRACTICES FOR SHORE PROTECTION. THE NATURE AND DEGREE OF REQUIRED SHORE PROTECTION MEASURES VARY WIDELY AT DIFFERENT LOCATITIES. DETAILED SUMMARIES OF APPLICABLE METHODS TECHNIQUES AND USEFUL DATA PERTINENT TO THE SOLUTION OF SHORE PROTECTION PROBLEMS HAVE BEEN INCLUDED. VOLUME I INCLUDES AN INTRODUCTION TO COASTAL ENGINEERING CONCEPTS, THE MECHANICS OF WAVE MOTION, METHODS OF WAVE AND WATER LEVEL PREDICTIONS AND DISCUSSION OF LITTORAL PROCESSES. VOLUME II DISCUSSES PLANNING ANALYSES, STRUCTURAL AND DESIGN FEATURES AND FACTORS, AND A CASE STUDY OF DESIGN PROBLEM CALCULATIONS FOR AN ARTIFICIAL OFFSHORE ISLAND. VOLUME III COMPRISES THE APPENDICES: A GLOSSARY OF TERMS, A

REF. NO.-0436 (CONTINUED)

LIST OF SYMBOLS, MISCELLANEOUS TABLES AND PLATES, AND A SUBJECT INDEX.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: PROTECT, STABILIZE, LITTORAL PROCESSES

****
REF. NO.-0475

U.S. ARMY CORPS OF ENGINEERS. 1974.

ENVIRONMENTAL ASSESSMENT: REPAIRS TO BREAKWATER AT ISLES OF SHOALS, MAINE AND NEW HAMPSHIRE.

7 EIA. U.S. ARMY CORPS OF ENGINEERS. NEW ENGLAND DIV.WALTHAM, MASS. 10 OPP.

THE ISLES OF SHOALS ARE LOCATED OFF THE COAST OF NEW HAMPSHIRE. FOUR OF THESE ISLETS ARE SO SITUATED THAT THEY AFFORD A SMALL HARBOR, GOSPORT HARBOR. BREAKWATERS WERE CONSTRUCTED AND COMPLETED IN 1913 TO IMPROVE HARBOR CONDITIONS. THE ISLE OF SHOALS BREAKWATERS WERE LAST REPAIRED IN 1955 AND HAVE SINCE THEN DETERIORATED FROM STORMS. IT IS PROPOSED TO REPAIR ONLY ONE BREAKWATER. ATLHOUGH SOME EXISTING ORGANISMS WILL BE DESTROYED IN THE PROCESS OF REHANDLING ROCKS AND PLACEMENT OF NEW ARMOR STONE, THE BREAKWATER WILL SERVE ESSENTIALLY AS AN ARTIFICIAL HABITAT AND WILL PROVIDE SHELTER PROTECTION AND A NATURAL SUBSTRATE FOR THE SETTLEMENT AND ATTACHMENT OF NUMEROUS PLANTS AND ANIMALS.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: EIS

DESCRIPTORS: CR 7, HARBOR, BREAKWATER, HABITAT

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REF. NO.-0274

U.S. ARMY CORPS OF ENGINEERS, NORTH CENTRAL DIVISION. 1973.

A STRATEGY FOR A GREAT LAKES SHORELINE DAMAGE PROTECTION PROGRAM FOR THE FEDERAL REGIONAL COUNCIL, REGION 5.

CHICAGO. INCOMPLETE.

THIS PAPER IS A REPORT ON THE NEED FOR A NEW APPROACH TO THE PROBLEM OF SHORELAND MANAGEMENT AND SHORE EROSION DAMAGES ON THE GREAT LAKES. IT PROVIDES AN ASSESSMENT OF EXISTING STATE AND FEDERAL PROGRAMS AND PRESENTS A FRAMEWORK WHERE MORE EFFECTIVE INSITUTIONAL ARRANGEMENTS COULD REDUCE HUMAN SUFFERING AND ECONOMIC LOSSES ON ONE HAND WHILE IMPROVING FEDERAL AND STATE PLANNING IN THE COASTAL ZONE ON THE OTHER HAND.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: GOV REP

REF. NO.-0274 (CONTINUED)

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

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REF. NO.-0319

U.S. ARMY ENGINEER DISTRICT, BALTIMORE. 1975.

ENVIRONMENTAL ASSESSMENT PROPOSED PROJECTS ON SPA AND BACK CREEKS ANNAPOLIS, MARYLAND.

U.S. ARMY CORPS OF ENGINEERS, BALTIMORE, MD. PAGING VARIOUS.

THE PROPOSED PROJECTS STUDIED INVOLVE 12 PERMIT APPLICATIONS FOR VARIOUS PROJECTS WITHIN SPA AND BACK CREEKS. AT PRESENT THERE ARE APPROXIMATELY 2,100 BOATS CURRENTLY MOORED ON THE TWO CREEKS DURING BOATING SEASON. THE ADDITIONAL BOAT SLIPS WILL INCREASE THE TOTAL NUMBER ON SPA CREEK BY APPROXIMATELY 7 PERCENT AND ON BACK CREEK BY 9 PERCENT. THE ASSESSMENT WAS BASED ON THE USE OF LITERATURE WHICH DESCRIBES SIMILAR ACTIONS, FIELD SURVEYS CONDUCTED TO DETERMINE THE UNIQUENESS OF THE TWO CREEKS, AND AVAILABLE SITE SPECIFIC DATA.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: EIS

DESCRIPTORS: DREDGE/FILL, BULKHEAD, CR 6, HABITAT, SEDIMENTATION, PIER, CUMULATIVE EFFECTS

****
REF. NO.-0393

U.S. ARMY ENGINEER DISTRICT, BALTIMORE. 1976.

MYSTIC HARBOR PROJECT AND OTHER POTENTIAL DEVELOPMENTS OF CHINCOTEAGUE BAY, MARYLAND AND VIRGINIA.

ENVIRONMENTAL ASSESSMENT. U.S. ARMY CORPS OF ENGINEERS, BALTIMORE, MD. PAGING VARIOUS.

THE MYSTIC HARBOUR DEVELOPMENT COMPANY IS CREATING A RESIDENTIAL COMMUNITY NEAR OCEAN CITY, MARYLAND. A PROPOSED CANAL PROVIDING WATER ACCESS TO THE COMMUNITY WOULD INVOLVE DREDGE AND FILL OPERATIONS REQUIRING A PERMIT FROM THE U.S. ARMY CORPS OF ENGINEERS. DURING THE COURSE OF PROCESSING THE APPLICATION AN ENVIRONMENTAL ASSESSMENT MUST BE PREPARED TO EVALUATE THE PROBABLE IMPACTS OF THE PROPOSED ACTION ON THE QUALITY OF HUMAN ENVIRONMENT. THIS DOCUMENT WAS PREPARED IN COMPLIANCE WITH THE NATIONAL ENVIRONMENTAL POLICY ACT OF 1969 (PL 91-190). IN ADDITION TO THE IMPACTS OF THIS INDIVIDUAL PROJECT, THIS DOCUMENT DISCUSSES THE LONG-TERM AND CUMULATIVE EFFECTS OF REGIONAL DEVELOPMENT IN THE CHINCOTEAGE BAY AREA. (AUTHOR ABSTRACT)

NATURE OF REFFRENCE: BIO

TYPE OF REFERENCE: EIS

DESCRIPTORS: HARBOR, RECREATION, CUMULATIVE EFFECTS, HABITAT, CR 6

****
REF. NO.-0226

U.S. ARMY ENGINEER DISTRICT, BUFFALO. 1976.

BUFFALO SEWER AUTHORITY PROPOSED SEWER OUTFALL AND APPURTENANT STRUCTURES, SQUAW ISLAND (NIAGARA RIVER) BUFFALO, ERIE COUNTY, NEW YORK.

ENVIRONMENTAL ASSESSMENT AND STATEMENT OF FINDINGS. U.S. ARMY CORPS OF ENGINEERS, BUFFALO, NEW YORK. 28 PP. + APPENDICES.

THE BUFFALO SEWER AUTHORITY PROPOSES TO CONSTRUCT A CELLULAR SHEET PILE BULKHEAD, INSTALL PIPELINES WITHIN IT, AND PLACE A 108-INCH DIAMETER SEWER OUTFALL IN THE NATURAL BOTTOM OF THE NIAGARA RIVER. THE SHORELINE AT THAT POINT IS ALREADY ARTIFICIAL, AND THE NET EFFECT OF BULKHEAD CONSTRUCTION WILL BE THE REPLACEMENT OF ONE SHORELINE STRUCTURE WITH ANOTHER. THE SEWER OUTFALL IS PART OF AN UPGRADING OF THE BUFFALO TREATMENT PLANT AND THE EFFLUENT WILL CAUSE LESS RIVER POLLUTION THAN PRESENTLY OCCURS. IT IS CONCLUDEDTHAT OVERALL ADVERSE ENVIRONMENTAL IMPACTS WILL BE OUTWEIGHED BY THE BENEFITS OF THE PROJECT.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: GOV REP

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

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REF. NO.-0236

U.S. ARMY ENGINEER DISTRICT, BUFFALO. 1975a.

COOPERATIVE BEACH EROSION PROJECT AT PRESQUE ISLE PENINSULA, ERIE, PA.

FINAL EIS. U.S. ARMY CORPS OF ENGINEERS, BUFFALO, NY. 125 PP.

THE PROBABLE ENVIRONMENTAL IMPACTS OF A BEACH EROSION CONTROL PROJECT AT PRESQUE ISLE PENINSULA, ERIE, PENNSYLVANIA ARE DESCRIBED. THIS PROJECT INVOLVES THREE PARTIAL BREAKWATERS TO BE CONSTRUCTED IN 10 FT OF WATER (LWD) 1,000 FT OFFSHORE. IN ADDITION, AN INITIAL 1,600,000 CUBIC YARDS OF BEACH SAND WILL BE REQUIRED FOR REPLENISHMENT. ANNUAL OR SEMI-ANNUAL REMOVAL OF ACCUMULATED SAND FROM DEPOSITS BEHIND THE BREAKWATERS AND REDISTRIBUTION OF IT ALONG THE BEACHES IS ALSO PROPOSED. WAVE ENERGY WILL BE DISSIPATED AT THE BREAKWATERS, REDUCING THE ABILITY OF THE WAVES TO ERODE BEACH SAND AND TRANSPORT IT TO THE EASTERN TIP OF THE PENINSULA. NOISE DISRUPTION AND TRUBIDITY WILL ENSUE FOR TWO OR THREE SEASONS DURING CONSTRUCTION.SOME LAKE BOTTOM HABITAT WILL BE DESTROYED AND DEVELOPMENT OF SANDSPITS ON THE EAST END OF THE PENINSULA MAY BE SLOWED. ALTERNATIVES TO THE PROPOSED ACTION ARE DESCRIBED.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: EIS

DESCRIPTORS: CR 8, BREAKWATER, PROTECT, LITTORAL PROCESSES

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REF. NO.-0340

U.S. ARMY ENGINEER DISTRICT, BUFFALO. UNDATEDb.

GENERAL PERMIT FOR TIMBER CRIB DOCKS IN LAKE ONTARIO.

ENVIRONMENTAL ASSESSMENT. U.S. ARMY CORPS OF ENGINEERS, BUFFALO, NEW YORK. UNPAGED.

THE GENERAL PERMIT PROGRAM ALLOWS THE PERMITTING OF A NUMBER OF APPLICATIONS FOR A PARTICULAR ACTIVITY HAVING LITTLE OR NO ADVERSE IMPACT ON THE AQUATIC ECOSYSTEM. THIS ASSESSMENT IS OF THE ENVIRONMENTAL IMPACTS OF TIMBER CRIBS IN GENERAL, ANYWHERE ALONG THE U.S. SHORELINE OF LAKE ONTARIO. THE APPLICANT IS REQUIRED TO SECURE A WATER QUALITY CERTIFICATION OR WAIVER THEREOF FROM THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION STATING THAT THE PROPOSED ACTIVITY WILL NOT ADVERSELY AFFECT EXISTING WATER QUALITY. A BRIEF DISCUSSION OF OTHER IMPACTS IS ALSO INCLUDED. IT IS CONCLUDED THAT THE ISSUING OF A GENERAL PERMIT FOR TIMBER CRIB DOCKS WILL NOT SIGNIFICANTLY AFFECT THE QUALITY OF THE HUMAN ENVIRONMENT AND THAT AN EIS IS NOT REQUIRED.

NATURE OF REFFRENCE: GENERAL

TYPE OF REFERFNCE: GOV REP

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

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REF. NO.-0358

U.S. ARMY ENGINEER DISTRICT, BUFFALO. 1975b.

OPERATION AND MAINTENANCE, DUNKIRK HARBOR, CHAUTAUQUA COUNTY, NY.

FINAL EIS. U.S. ARMY CORPS OF ENGINEERS, BUFFALO, NY. 123 PP. + APPENDICES.

THE MAINTENANCE OF STRUCTURES AND CHANNELS IN DUNKIRK HARBOR, NEW YORK IS PROPOSED. THESE ACTIVITIFS INCLUDE PERIODIC DREDGING OF 20,000 CUBIC YARDS OF SEDIMENT FROM NAVIGATION CHANNELS AND REPAIR ON AN EXISTING PIER AND BREAKWATER. EXPECTED ADVERSE IMPACTS INCLUDE RESUSPENSION OF TOXIC CHEMICALS DURING DREDGING, SILTATION OF AQUATIC HABITAT, DISTURBANCE OF EXISTING FISH POPULATIONS, AND TURBIDITY EFFECTS.

NATURE OF REFFRENCE: BIO

TYPE OF REFERFNCE: EIS

DESCRIPTORS: CR 8, HARBOR, DREDGE/FILL, BREAKWATER, PIER, BENTHOS, FISH, PLANKTON, HABITAT

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REF. NO.-0359

U.S. ARMY ENGINEER DISTRICT, BUFFALO. 1975c.

SMALL BOAT HARBOR OF REFUGE AT FAIRPORT HARBOR, LAKE COUNTY, OHIO.

FINAL EIS. U.S. ARMY CORPS OF ENGINEERS BUFFALO, N.Y. 89 PP. + APPENDICES.

THE CORPS OF ENGINEERS HAS PROPOSED THE ESTABLISHMENT OF HARBOR FACILITIES FOR SMALL CRAFT AT FAIRPORT HARBOR, OHIO. THE PROPOSED DEVELOPMENT WOULD CONSIST OF DREDGING AN APPROACH CHANNEL, AN L-SHAPED DOCK CHANNEL, AND CONSTRUCTION OF THREE STONE BREAKWATERS AND A STONE REVETMENT. IMPACTS INCLUDE TEMPORARY TURBIDITY EFFECTS, INCREASED BOAT TRAFFIC, ELIMINATION OF 2 ACRES OF SHORELINE HABITAT, AND DISPLACEMENT OF 4.3 ACRES OF BOTTOM HABITAT BY THE BREAKWATERS.

NATURE OF REFERENCE: RIO

TYPE OF REFERENCE: EIS

DESCRIPTORS: CR 8, HARBOR, BREAKWATER, REVETMENT, DREDGE/FILL, FISH, BENTHOS, HABITAT

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REF. NO.-0367

U.S. ARMY ENGINEER DISTRICT, BUFFALO. UNDATEDa.

GENERAL PERMIT FOR SHORE PROTECTION IN LAKE ERIE, STATE OF OHIO.

ENVIRONMENT ASSESSMENT. U.S. ARMY CORPS OF ENGINEERS, BUFFALO, NY. UNPAGED.

THE ARMY ENGINEER DISTRICT, BUFFALO, NY, PROPOSES TO ISSUE A GENERAL PERMIT FOR REVETMENT SHORE PROTECTION STRUCTURES IN THE STATE OF OHIO. THIS REPORT ASSESSES THE ENVIRONMENTAL IMPACTS ASSOCIATED WITH THESE STRUCTURES AND DETERMINES THE NEED FOR AN EIS. A RIPRAP REVETMENT IS ONE OF THE MOST DESIRABLE MEANS OF CURTAILING EROSION CAUSED BY WAVE ACTION AND RUNOFF. STRUCTURES CONSIDERED CONSIST OF VARIOUS SIZED COMPONENTS PLACED IN LAYERS PARALLEL TO THE SHORELINE AND PROJECTING SUFFICIENTLY ABOVE AND BELOW THE NORMAL WATER LEVEL TO PREVENT UNDERMINING OR OVERTOPPING BY WAVES. PLACEMENT AND MATERIAL CRITERIA ARE LISTED, A DESCRIPTION OF THE ENVIRONMENTAL SETTING AND IMPACTS OF THE PROPOSED ACTION ARE DISCUSSED. IT IS CONCLUDED THAT ISSUANCE OF THE GENERAL PERMIT WILL NOT SIGNIFICANTLY AFFECT THE QUALITY OF THE HUMAN ENVIRONMENT.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: CR 8, REVETMENT, PROTECT

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REF. NO.-0427

U.S. ARMY ENGINEER DISTRICT, BUFFALO. UNDATEDd.

PROPOSED GENERAL PERMIT FOR OPEN PILE DOCKS, SEASONAL DOCKS AND BOAT HOISTS IN NEW YORK.

ENVIRON. ASSESS. U.S. ARMY CORPS OF ENGINEERS, BUFFALO, NY. 35 PP.

THE BUFFALO DISTRICT, U.S. ARMY CORPS OF ENGINEERS PROPOSES ISSUING A GENERAL PERMIT FOR OPEN PILE AND SEASONAL DOCKS IN NAVIGABLE WATERS OF LAKE ERIE, LAKE ONTARIO AND TRIBUTARY RIVERS IN NEW YORK STATE. EXISTING ENVIRONMENTAL SETTINGS OF THE AREAS INVOLVED ARE BRIEFLY DESCRIBED

REF. NO.-0427 (CONTINUED)

AND PROBABLE IMPACTS ARE ASSESSED. IT IS CONCLUDED THAT ISSUANCE OF A GENERAL PERMIT WILL NOT SIGNIFICANTLY AFFECT THE HUMAN ENVIRONMENT AND DOES NOT REQUIRE AN EIS.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: EIS

DESCRIPTORS: PIER, MOORING, LAUNCH, CR 8, BOAT HOIST

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REF. NO.-0461

U.S. ARMY ENGINEER DISTRICT, BUFFALO. UNDATEDc.

PROPOSED GENERAL PERMIT FOR NAVIGATION, MOORING AND SPECIAL PURPOSE BUOYS AND FLOATING PLATFORMS IN NEW YORK STATE.

ENV. ASSESS. U.S. ARMYCORPS OF ENGINEERS, BUFFALO, NY. UNPAGED.

THE BUFFALO DISTRICT, U.S. ARMY CORPS OF ENGINEERS, PROPOSES TO ISSUE A GENERAL PERMIT FOR NAVIGATION, MOORING AND SPECIAL PURPOSE BUOYS AND FLOATING PLATFORMS IN NEW YORK STATE. LIGHT DUTY BUOYS ARE SMALL, CHARACTERISTICALLY USED TO MOOR RECREATIONAL VESSELS, MARK PRIVATE CHANNELS AND SIMILAR PURPOSES. LARGE BUOYS ARE USUALLY 2 TO 5 FT IN DIAMETER AND ARE USED TO MARK OBSTRUCTION IN OPEN WATER OR FOR COMMERCIAL PURPOSES. THESE STRUCTURES ARE EXPECTED TO HAVE NO APPRECIABLE ADVERSE IMPACT ON THE ENVIRONMENT.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: EIA

DESCRIPTORS: CR 8, BUOY, MOORING, FLOAT PLATFORM

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REF. NO.-0225

U.S. ARMY ENGINEER DISTRICT, CHARLESTON. 1976b.

MURRELLS INLET NAVIGATION PROJECT GEORGETOWN COUNTY, SOUTH CAROLINA.

FINAL ENVIRONMENTAL IMPACT STATEMENT. U.S. ARMY CORPS OF ENGINEERS. 96 PP. AND APPENDICES.

THE PROPOSED PLAN CONSISTS OF DREDGING AN ENTRANCE CHANNEL AND AN INNER CHANNEL, CONSTRUCTING A NORTH WEIR JETTY AND A SOUTH JETTY, CONSTRUCTING A FISHING WALKWAY ON TOP OF THE SOUTH JETTY, AND CONSTRUCTING SAND DIKES ON BOTH SIDES OF THE INLET TO TIE THE JETTIES TO THE EXISTING DUNE LINE. POSSIBLE IMPACTS INCLUDE SHORT-TERM INCREASED TURBIDITY, ALTERATION OF VEGETATION, TEMPORARY FRIGHTENING OF BIRDS AND MAMMALS, DESTRUCTION OF SOME BENTHIC ORGANISMS, SMOTHERING OF INVERTEBRATES, POSSIBLE DISPLACEMENT OF WILDLIFE AND POSSIBLE INCREASE IN LOCAL MOSQUITO POPULATION.

NATURE OF REFERENCE: BIO

REF. NO.-0225 (CONTINUED)

TYPE OF REFERENCE: EIS

DESCRIPTORS: DREDGE/FILL, JETTY, CR 5, SEDIMENTATION, BENTHOS, FISH, PRODUCTIVITY

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REF. NO.-0227

U.S. ARMY ENGINEER DISTRICT, CHARLESTON. 1976a.

LITTLE RIVER INLET NAVIGATION PROJECT BRUNSWICK COUNTY, NORTH CAROLINA AND HORRY COUNTY, SOUTH CAROLINA.

REVISED DRAFT ENVIRONMENTAL IMPACT STATEMENT. U.S. ARMY CORPS OF ENGINEERS. CHARLESTON, SC. 96 PP. AND APPENDICES.

THE RECOMMENDED PLAN OF IMPROVEMENT INCLUDES DREDGING AN ENTRANCE CHANNEL, PROVIDING AN INNER CHANNEL, DREDGING AN UPCOAST AND DOWNCOAST DEPOSITION BASIN, CONSTRUCTING A NORTH AND SOUTH JETTY, CONSTRUCTING SAND DIKES ON BOTH SIDES OF THE INLET, AND POSSIBLY CONSTRUCTING A FISHING WALKWAY ON TOP OF THE SOUTH JETTY. POSSIBLE IMPACTS INCLUDE INCREASED TURBIDITY, ALTERATION OF VEGETATION, FRIGHTENING OF BIRDS AND MAMMALS, DESTRUCTION OF BENTHIC ORGANISMS AND SMOTHERING OF INVERTEBRATES DURING CONSTRUCTION. OTHER IMPACTS INCLUDE IMPROVEMENT OF NAVIGATION AND ITS ASSOCIATED BENEFITS PLUS INCREASED RECREATIONAL OPPORTUNITIES

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: EIS

DESCRIPTORS: FISH, SHELLFISH, CR 5

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REF. NO.-0353

U.S. ARMY ENGINEER DISTRICT, DETROIT. 1975c.

RECREATIONAL BOAT HARBOR AT DE TOUR, MICHIGAN.

DRAFT EIS. U.S. ARMY CORPS OF ENGINEERS, DETROIT, MI. 65 PP. + APPENDICES.

THE CORPS OF ENGINEERS HAS PROPOSED THE ESTABLISHMENT OF RECREATIONAL AND REFUGE HARBOR FACILITIES FOR SMALL CRAFT AT DE TOUR, CHIPPEWA COUNTY MICHIGAN. CONSTRUCTION WOULD TEMPORARILY DEGRADE THE AQUATIC ENVIRONMENT. SOME BENTHIC ORGANISMS WOULD BE REMOVED. INCREASED BOAT ACTIVITY WOULD DEGRADE THE WATER QUALITY OF THE HARBOR AREA

NATURE OF REFFRENCE: BIO

TYPE OF REFERFNCE: EIS

DESCRIPTORS: HARBOR, RECREATION, CR 8, BREAKWATER, HABITAT, BENTHOS, DREDGE/FILL

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REF. NO.-0451

U.S. ARMY ENGINEER DISTRICT, DETROIT. 1975a.

MITIGATION OF SHORE DAMAGE ATTRIBUTED TO THE FEDERAL NAVIGATION STRUCTURES AT HOLLAND HARBOR, MICHIGAN.

FINAL EIS. U.S. ARMY CORPS OF ENGINEERS, DETROIT, MI. 192 PP. + APPENDICES.

THE CORPS OF ENGINEERS PROPOSES TO MITIGATE SHORE EROSION IN THE VICINITY OF HOLLAND HARBOR, OTTAWA COUNTY, MICHIGAN, THAT IS ATTRIBUTABLE TO THE FEDERAL NAVIGATION STRUCTURES AT THE HARBOR. THE PLAN CONSIDERED MOST PRACTICAL FOR THIS PURPOSE ENTAILS THE CREATION OF A FEEDER BEACH ON THE SOUTH SIDE OF THE HARBOR TO PROVIDE A SOURCE OF LITTORAL MATERIAL FOR NOURISHING MORE SOUTHERLY BEACH AREAS SUFFERING SHORE DAMAGE. MATERIAL WILL BE SUPPLIED FROM DREDGING THE MOUTH OF THE HARBOR DURING ROUTINE MAINTENANCE. THE DREDGING AND DISPOSITION OF SAND FOR THE PROJECT WILL TEMPORARILY CAUSE LOCALIZED BENTHOS DAMAGE AND INCREASED TURBIDITY AT THE OPERATIONAL SITES, THE LATTER PROBABLY IMPARTING MINOR DAMAGE TO LOCAL DRIFTING PLANKTON AND A TEMPORARY DISPLACEMENT OF FISH. FOLLOWUP RECOVERY WILL BE RAPID.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: EIS

DESCRIPTORS: CR 8, EROSION, HARBOR, LITTORAL PROCESSES, BENTHOS, FISH, PLANKTON, SEDIMENTATION, DREDGE/FILL

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REF. NO.-0452

U.S. ARMY ENGINEER DISTRICT, DETROIT. 1975b.

PROPOSED HARBOR IMPROVEMENTS, CHARLEVOIX HARBOR, MICHIGAN.

FINAL EIS. U.S. ARMY CORPS OF ENGINEERS, DETROIT, MI. 34 PP. + APPENDICES.

THE CORPS OF ENGINEERS HAS PROPOSED IMPROVEMENTS IN THE EXISTING FEDERAL NAVIGATION PROJECT AT CHARLEVOIX HARBOR, MICHIGAN. THE SELECTED PLAN PROVIDED FOR THE DEEPENING OF THE TWO PINE RIVER CHANNELS TO A PROJECT DEPTH OF 23 FEET BELOW LWD AND THE PROTECTION OF A SHORT LENGTH OF CHANNEL BANK EAST OF THE U.S. 31 BRIDGE. LOCALIZED INCREASED LEVELS OF SUSPENDED SEDIMENTS AND SILTS WILL TEMPORARILY LOWER DISSOLVED OXYGEN LEVELS IN THE IMMEDIATE VICINITY. BENTHIC ORGANISMS INHABITING THE AREA TO BE DREDGED WILL BE ELIMINATED.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: EIS

DESCRIPTORS: CR 8, HARBOR, DREDGE/FILL, SEDIMENTATION, BENTHOS, FISH

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REF. NO.-0339

U.S. ARMY ENGINEER DISTRICT, LOS ANGELES. 1970.

REF. NO.-0339 (CONTINUED)

BEACH EROSION CONTROL, SUNSET CLIFFS PROJECT, SAN DIEGO COUNTY, CA.

ENVIRONMENTAL STATEMENT. U.S. ARMY CORPS OF ENGINEERS. 5 PP. + APPENDICES.

AN ENVIRONMENTAL ASSESSMENT IS GIVEN OF A PROPOSED PROJECT TO STOP BEACH AND CLIFF EROSION BY CONSTRUCTING A PROTECTIVE BEACH, STABILIZED BY THE CONSTRUCTION OF FOUR ROCK GROINS, CONSTRUCTION OF 11 SEPARATE LENGTHS OF ROCK REVETMENT, TWO DIKES AND THE SEALING OF 10 CAVES. IT IS GENERALLY CONCLUDED THAT THE PROPOSED PROJECT IS NECESSARY TO PREVENT EROSION AND THAT THERE WILL BE NO SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: EIS

DESCRIPTORS: GROIN, REVETMENT, PROTECT, EROSION, CR 2

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REF. NO.-0341

U.S. ARMY ENGINEER DISTRICT, LOS ANGELES. 1974c.

PORT HUENEME HARBOR, VENTURA COUNTY, CALIFORNIA.

FINAL ENVIRONMENTAL STATEMENT, U.S. ARMY CORPS OF ENGINEERS. 18 PP. + APPENDICES.

THIS ENVIRONMENTAL STATEMENT IS DIRECTED AT THE SECOND PHASE OF A THREE PHASE PROJECT INVOLVING THE DEEPENING OF THE CENTRAL BASIN AND CHANNEL A OF PORT HUENEME HARBOR FROM 32 FEET TO 35 FEET DEEP. THE DREDGE SPOIL WOULD BE USED AS LANDFILL. IT IS GENERALLY CONCLUDED THAT CONSIDERING THE ECONOMIC BENEFITS OF EXPANDING THE PORT, THE SHORT TERM BIOLOGICAL IMPACTS WILL BE SIGNIFICANT WITHIN THE DREDGING LIMITS OF THE HARBOR BUT OVER A LONG-TERM PERIOD SHOULD BE OF LITTLE IMPORTANCE.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: EIS

DESCRIPTORS: CR 2, DREDGE/FILL

****
REF. NO.-0411

U.S. ARMY ENGINEER DISTRICT, LOS ANGELES. UNDATED.

VENTURA MARINA VENTURA COUNTY, CALIFORNIA.

WORKING PAPER (FINAL EIS) U.S. ARMY CORPS OF ENGINEERS, LOS ANGELES, CA. 14 PP. + APPENDICES.

PROPOSED NAVIGATION IMPROVEMENT FOR VENTURA MARINA INCLUDES CONSTRUCTION OF A 1500 FT DETACHED BREAKWATER, CONSTRUCTION OF RECREATIONAL FACILITIES FOR SPORT FISHING AND ANCILLARY FACILITIES AND MAINTENANCE OF EXISTING FACILITIES. THE PROJECT WOULD PROVIDE SAFE ENTRANCE TO THE MARINA. IT WOULD CAUSE TEMPORARY DISRUPTION OF THE MARINE BIOTA OF THE AREA. DEPOSITION OF DREDGED

REF. NO.-0411 (CONTINUED)

MATERIAL ON A CONTINUAL BASIS WILL CAUSE MODIFICATION OF THE PRESENT ECOSYSTEM ON DOWN COAST BEACHES AND THE SAND DUNE ECOSYSTEM WILL BE LOST.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: EIS

DESCRIPTORS: HARBOR, BREAKWATER, DREDGE/FILL, CR 2, HABITAT, RECREATION, PROTECT

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REF. NO.-0413

U.S. ARMY ENGINEER DISTRICT, LOS ANGELES. 1974a.

LAS TUNAS BEACH PARK, LOS ANGELES COUNTY, CALIFORNIA.

FINAL EIS. U.S. ARMY CORPS OF ENGINEERS, LOS ANGELES, CA. 42 PP. + APPENDICES.

THIS PROJECT INVOLVES CONSTRUCTION OF TWO RUBBLEMOUND GROINS, PLACEMENT OF ARTIFICIAL FILL BETWEEN THEM AND UPCOAST OF THEM, REMOVAL OF DETERIORATED SHEET-PILE GROINS AND EXTENSION OF EXISTING STORM DRAINS. THIS WILL PROVIDE PROTECTION TO THE EXISTING PUBLIC BEACH AND PACIFIC COAST HIGHWAY, ELIMINATE THE SAFETY HAZARD CAUSED BY EXISTING SHEET-PILE GROINS AND PROVIDE ADDITIONAL RECREATIONAL BEACH AREA. CONSTRUCTION OF GROINS AND DEPOSITION OF SAND WILL DESTROY MARINE LIFE IN THE AREA; TERRESTRIAL LIFE WILL BE DESTROYED ON THE BARROW SITE AND EXISTING RECREATION USE OF THE AREA WILL BE INTERRUPTED.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: EIS

DESCRIPTORS: CR 2, GROIN, RECREATION, LAND PLANTS, HABITAT

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REF. NO.-0449

U.S. ARMY ENGINEER DISTRICT, LOS ANGELES. 1974b.

LOS ANGELES-LONG BEACH HARBORS, LOS ANGELES COUNTY, CALIFORNIA.

FINAL EIS. U.S. ARMY CORPS OF ENGINEERS, LOS ANGELES, CA. 66 PP. + APPENDICES.

THE PROPOSED ACTION CALLS FOR DEEPENING AREAS IN THE LOS ANGELES PART OF LOS ANGELES-LONG BEACH HARBORS AND USE THE FILL TO CREATE NEW LANDS FOR TERMINALS. THE MORE IMPORTANT ADVERSE IMPACTS INCLUDE TURBIDITY EFFECTS, THE LOSS OF MARINE HABITATS INCLUDING A PART OF THE PRESENT CATCH AREAS FOR A LARGE PART OF THE SOUTHERN CALIFORNIA LIVE BAIT ANCHOVY FISHERY, THE POSSIBLE DISPERSION OF POLLUTANTS FROM THE SEDIMENTS DREDGED, AND A SLIGHT REDUCTION IN THE RATES OF TIDAL FLUSHING IN CERTAIN PARTS OF THE OUTER HARBOR.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: EIS

REF. NO.-0449 (CONTINUED)

DESCRIPTORS: CR 2, HARBOR, DREDGE/FILL, HABITAT, FISH, BENTHOS, BIRDS

****
REF. NO.-0462

U.S. ARMY ENGINEER DISTRICT, LOS ANGELES. 1974d.

SURFSIDE-SUNSET AND NEWPORT BEACH, ORANGE COUNTY, CALIFORNIA.

FINAL EIS. U.S. ARMY CORPS OF ENGINEERS, LOS ANGELES, CA. PP. 27-38.

FOUR ROCK GROINS AVERAGING 510 FT IN LENGTH AND PLACEMENT OF BEACH FILL BETWEEN THEM ARE PROPOSED IN ORANGE COUNTY, CALIFORNIA. THE PURPOSE OF THE PROPOSED PROJECT IS RESTORATION AND STABILIZATION OF LOST RECREATIONAL AND PROTECTIVE BEACH. LOSS OF EXISTING SANDY BEACH MARINE HABITAT WOULD BE PREVENTED, AND NEW HABITATS WOULD BE CREATED IN ROCK STRUCTURES FOR ROCKY SHORE CREATURES. ADVERSE ENVIRONMENTAL EFFECTS INCLUDE TEMPORARY TURBIDITY DURING CONSTRUCTION, LOSS OF BEACH SLOPE BIOTA IN AREA OCCUPIED BY GROINS, AND DESTRUCTION OR DISPLACEMENT OF BEACH BIOTA OVER ABOUT THIRTY ACRES OF BORROW AND FILL AREA FOR BEACH NOURISHMENT.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: EIS

DESCRIPTORS: GROIN, PROTECT, RECREATION, CR 2, HABITAT, DREDGE/FILL

****
REF. NO.-0478

U.S. ARMY ENGINEER DISTRICT, LOS ANGELES. 1976.

PORT SAN LUIS. SAN LUIS OBISPO COUNTY, CALIFORNIA.

FINAL EIS. U.S. ARMY CORPS OF ENGINEERS, LOS ANGELES, CA. 71 PP. + APPENDICES.

A BREAKWATER IS PROPOSED FOR PORT SAN LUIS TO PROVIDE A PROTECTED HARBOR FOR COMMERCIAL, SPORT-FISHING AND RECREATIONAL BOATS AND TO CREATE A HARBOR OF REFUGE. THE PROJECT WOULD ALSO FULFILL A DEMAND FOR BERTHING SPACE FOR RECREATIONAL AND COMMERCIAL FISHING BOATS. THE PROPOSED BREAKWATERS WOULD BE A 3615 FT LONG DETACHED RUBBLE-MOUND STRUCTURE AND A 750 FT LONG STRUCTURE ATTACHED TO SMITH ISLAND. IN ADDITION, THE PLAN INCLUDES REMOVAL OF ROCK PINNACLES IN THE CHANNEL AND ANCHORAGE AREAS. IMPORTANT ADVERSE ENVIRONMENTAL EFFECTS ARE DESTRUCTION OF BENTHIC HABITAT AND ASSOCIATED SPECIES, TEMPORARY AIR, WATER AND NOISE POLLUTION, TEMPORARY TURBIDITY, LOCAL DISRUPTION OF BOATING TRAFFIC, ALTERATION OF THE AESTHETIC APPEARANCE OF THE SHORELINE AND HARBOR AREAS AND A POTENTIAL FOR INCREASE IN HARBOR WATER QUALITY PROBLEMS. THE PORT SAN LUIS HARBOR DISTRICT WILL CONSTRUCT OTHER FEATURES TO COMPLETE THE HARBOR, INCLUDING A 5.4 ACRE LANDFILL WITH STONE-REVETTED SIDE-SLOPES.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: EIS

REF. NO.-0478 (CONTINUED)

DESCRIPTORS: CR 2, BREAKWATER, HARBOR, REVETMENT, PROTECT, HABITAT, DREDGE/FILL

****
REF. NO.-0548

U.S. ARMY ENGINEER DISTRICT, NEW YORK. 1976.

FIRE ISLAND INLET TO MONTAUK POINT, NEW YORK BEACH EROSION CONROL AND HURRICANE PROTECTION PROJECT.

DRAFT EIS. U.S. ARMY CORPS OF ENGINEERS. 2 VOLUMES. 204 PP. + APPENDICES.

A DRAFT ENVIRONMENTAL IMPACT STATEMENT IS PRESENTED WHICH ADDRESSES ALL WORK, PAST AND FUTURE, RELATED TO THE COASTLINE FROM FIRE ISLAND INLET TO MONTAUK POINT. THIS INCLUDES WIDENING BEACHES, RAISING DUNES, SAND FENCING AND PLANTING GRASS ON DUNES, CONSTRUCTING INTERIOR DRAINAGE STRUCTURES, BEACH NOURISHMENT, AND CONSTRUCTING A MAXIMUM OF 50 GROINS. NONVIABLE ALTERNATIVES INCLUDE: SEAWALLS, BULKHEADS, OFFSHORE BREAKWATERS, AND GROINS WITHOUT BEACH FILL. VIABLE ALTERNATIVES INCLUDE: NO ACTION AT ALL, CLOSE MOUCHES AND SHINNECOCK INLETS, LEAVE INLETS OPEN BUT PROVIDE FOR SAND BYPASSING, REMOVE GROINS AT WESTHAMPTON AND GEORGICA POND, STRENGTHEN LAND USE REGULATIONS.

NATURE OF REFFRENCE: ENG

TYPE OF REFERENCE: EIS

DESCRIPTORS: GROIN, CR 6, HABITAT

****
REF. NO.-0334

U.S. ARMY ENGINEER DISTRICT, NORFOLK. UNDATEDa.

ASSESSMENT OF PERMIT APPLICATION FOR BULKHEAD IN THE MATTAPONI RIVER.

U.S. ARMY CORPS OF ENGINEERS, NORFOLK, VA. 2 PP.

THIS REPORT REVIEWS A PERMIT APPLICATION FOR A PROPOSED BULKHEAD IN THE MATTAPONI RIVER NEAR WEST POINT, VIRGINIA. THE CHARACTERISTICS OF THE STRUCTURE AND PROBABLE IMPACTS ARE OUTLINED.

NATURE OF REFFRENCE: GENERAL

TYPE OF REFERENCE: GOV REP

DESCRIPTORS: BULKHEAD, CR 6, EROSION, PROTECT

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REF. NO.-0335

U.S. ARMY ENGINEER DISTRICT, NORFOLK. UNDATEDb.

ASSESSMENT OF A PERMIT APPLICATION FOR CONSTRUCTION OF A SANDBAG SILL AND DREDGING IN INGRAM BAY.

U.S. ARMY CORPS OF ENGINEERS, NORFOLK, VA. 2 PP.

THIS REPORT REVIEWS A PERMIT APPLICATION FOR A PROPOSED 500 FOOT SANDBAG SILL IN INGRAM BAY, VIRGINIA. THIS WILL BE CONSTRUCTED TO PROTECT THE SHORELINE AND CLEAR THE CHANNEL LEADING TO THE APPLICANT'S MARINA. THE CHARACTERISTICS OF THE STRUCTURE AND PROBABLE IMPACTS ARE OUTLINED.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: GOV REP

DESCRIPTORS: BREAKWATER, PROTECT, EROSION, CR 6

****
REF. NO.-0336

U.S. ARMY ENGINEER DISTRICT, NORFOLK. 1977a.

ASSESSMENT OF PERMIT APPLICATION FOR BULKHEADING IN THE EASTERN BRANCH OF CARTER'S CREEK.

U.S. ARMY CORPS OF ENGINEERS, NORFOLK, VA. 2 PP.

THIS REPORT REVIEWS A PERMIT APPLICATION FOR A PROPOSED 1435 LINEAR FOOT BULKHEAD IN THE EASTERN BRANCH OF CARTER'S CREEK, VIRGINIA. THIS PROJECT WILL ALLOW APPLICANT TO REBUILD A COMMERCIAL SEAFOOD HOUSE. THE CHARACTERISTICS OF THE STRUCTURE AND PROBABLE IMPACTS ARE OUTLINED.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: GOV REP

DESCRIPTORS: BULKHEAD, PROTECT, CR 6

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REF. NO.-0337

U.S. ARMY ENGINEER DISTRICT, NORFOLK. 1977e.

ASSESSMENT OF PERMIT APPLICATION FOR SANDBAG SILL CONSTRUCTION IN THE RAPPAHANNOCK RIVER.

U.S. ARMY CORPS OF ENGINEERS, NORFOLK, VA. 2 PP.

THIS REPORT REVIEWS A PERMIT APPLICATION FOR PROPOSED CONSTRUCTION OF SANDBAG SILLS IN VARIOUS SECTIONS OF A GROIN FIELD. THE SILLS ARE TO DETERMINE IF THEY MAKE THE EXISTING GROIN SYSTEM MORE EFFICIENT OR ELIMINATE THEIR NEED ALTOGETHER. THE CHARACTERISTICS OF THE SILLS AND PROBABLE IMPACTS ARE OUTLINED.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: GOV REP

DESCRIPTORS: BREAKWATER, CR 6, GROIN, LITTORAL PROCESSES, PROTECT

****
REF. NO.-0345

U.S. ARMY ENGINEER DISTRICT, NORFOLK. 1977c.

ASSESSMENT OF PERMIT APPLICATION FOR CONSTRUCTION AND FILLING IN THE EASTERN BRANCH OF THE LYNNHAVEN RIVER.

U.S. ARMY CORPS OF ENGINEERS, NORFOLK, VA. 2 PP.

THIS REPORT REVIEWS A PERMIT APPLICATION FOR PROPOSED CONSTRUCTION OF A 170 LINEAR FOOT BULKHEAD AND RELOCATION OF A DOCK. THE CHARACTERISTICS OF THE STRUCTURES AND PROBABLE IMPACTS ARE OUTLINED. THE PROJECT WILL BE LOCATED IN A CANAL OFF THE EASTERN BRANCH OF THE LYNNHAVEN RIVER, VIRGINIA.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: GOV REP

DESCRIPTORS: BULKHEAD, PROTECT, CR 6, EROSION, PIER

****
REF. NO.-0346

U.S. ARMY ENGINEER DISTRICT, NORFOLK. 1977b.

ASSESSMENT OF PERMIT APPLICATION FOR CONSTRUCTION AND FILLING IN CHESAPEAKE BAY.

U.S. ARMY CORPS OF ENGINEERS, NORFOLK, VA. 2 PP.

THIS REPORT REVIEWS A PERMIT APPLICATION FOR PROPOSED CONSTRUCTION OF A 125 LINEAR FOOT BULKHEAD TO PROTECT PRIVATE SHORELINE. THE CHARACTERISTICS OF THE STRUCTURE AND PROBABLE IMPACTS ARE OUTLINED.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: GOV REP

DESCRIPTORS: BULKHEAD, PROTECT, EROSION, CR 6

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REF. NO.-0347

U.S. ARMY ENGINEER DISTRICT, NORFOLK. UNDATEDc.

ASSESSMENT OF PERMIT APPLICATION FOR RIPRAP PLACEMENT IN TOPPING CREEK.

U.S. ARMY CORPS OF ENGINEERS, NORFOLK, VA. 2 PP.

THIS REPORT REVIEWS A PERMIT APPLICATION FOR PROPOSED PLACEMENT OF 340 FEET OF RIPRAP AND A 20 FOOT LONG OPEN PILE T-HEAD PIER FOR MOORING. THE CHARACTERISTICS OF THE STRUCTURES AND PROBABLE IMPACTS ARE OUTLINED.

NATURE OF REFERENCE: GENERAL

REF. NO.-0347 (CONTINUED)

TYPE OF REFERENCE: GOV REP

DESCRIPTORS: REVETMENT, PROTECT, EROSION, PIER, MOORING, CR 6

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REF. NO.-0348

U.S. ARMY ENGINEER DISTRICT, NORFOLK. 1977d.

ASSESSMENT OF PERMIT APPLICATION FOR RIPRAP AND CONSTRUCTION IN MYER CREEK.

U.S. ARMY CORPS OF ENGINEERS, NORFOLK, VA. 2 PP.

THIS REPORT REVIEWS A PERMIT APPLICATION FOR PROPOSED CONSTRUCTION OF A 100 FOOT AND 200 FOOT RIPRAP WALL IN MYER CREEK, VIRGINIA. AN OPEN PILE PIER (60 FEET) IS ALSO PROPOSED. THE CHARACTERISTICS OF THE STRUCTURES AND PROBABLE IMPACTS ARE OUTLINED.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: GOV REP

DESCRIPTORS: REVETMENT, PIER, PROTECT, MOORING, CR 6, EROSION

****
REF. NO.-0030

U.S. ARMY ENGINEER DISTRICT, PORTLAND. 1975c.

SIUSLAW RIVER AND BAR JETTY EXTENSION, OREGON.

U. S. ARMY CORPS OF ENG., PORTLAND DISTRICT. DRAFT EIS.

THE PROPOSED ACTION OF EXTENDING THE SIUSLAW RIVER JETTIES TO IMPROVE NAVIGATION IS DISCUSSED. EXISTING ENVIRONMENTAL SETTING IS OUTLINED WHICH INCLUDES GEOLOGY, CLIMATE, AIR QUALITY, WATER QUALITY, FLORA, FAUNA, AND MAN-MADE ELEMENTS. PHYSICAL, BIOLOGICAL, AND SOCIO-ECONOMIC IMPACTS ARE CONSIDERED.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: EIS

DESCRIPTORS: JETTY, CR 1, EROSION, SEDIMENTATION

****
REF. NO.-0031

U.S. ARMY ENGINEER DISTRICT, PORTLAND. 1975b.

FINAL ENVIROMENTAL IMPACT STATEMENT: OPERATION AND MAINTENANCE OF JETTIES AND DREDGING PROJECTS IN TILLAMOOK ESTUARY, OREGON.

CORPS OF ENGINEERS, PORTLAND DISTRICT.

REF. NO.-0031 (CONTINUED)

THE REPORT DISCUSSES THE IMPACT OF JETTY MAINTENANCE AND DREDGING IN THE TILLAMOOK BAY, OREGON. EXISTING ENVIRONMENTAL SETTING DESCRIPTION INCLUDES CLIMATOLOGY, HYDROLOGY, SOILS, GEOLOGY, WATER QUALITY, AIR QUALITY, AQUATIC AND TERRESTRIAL BIOLOGY, AND THE SOCIO-ECONOMIC CHARACTERISTICS OF THE AREA. ENVIRONMENTAL IMPACT OF PROPOSED JETTY MAINTENANCE AND DREDGING AND ALTERNATIVE ACTIVITIES IS PRESENTED.

NATURE OF REFFRENCE: GENERAL

TYPE OF REFERENCE: EIS

DESCRIPTORS: JETTY, CR 1, DREDGE/FILL, STABILIZE, PIER, EROSION

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REF. NO.-0051

U.S. ARMY ENGINEER DISTRICT, PORTLAND. 1976e.

UMPQUA RIVER JETTY EXTENSION.

REVISED DRAFT ENVIRONMENTAL IMPACT STATEMENT. U.S. ARMY CORPS OF ENGINEERS, PORTLAND OR.

CONSTRUCTION OF A 2,600-FOOT SEAWARD EXTENSION OF THE EXISTING TRAINING JETTY TO CONNECT WITH THE EXISTING SOUTH JETTY AT THE TERMINAL END IS PROPOSED. ENVIRONMENTAL IMPACTS DISCUSSED INCLUDE INCREASED MIXING AT ENTRANCE, CHANGE IN SHOALING PATTERNS, ELIMINATION OF CROSS CURRENTS AT THE ENTRANCE; LESS HAZARDOUS WAVE CONDITIONS IN THE INNER BAR AREA, INCREASED WAVE HEIGHT IN LOWER ESTUARY, ELIMINATION OF 10 ACRES OF SAND BOTTOM HABITAT, IMPOUNDMENT OF 57 ACRES OF MARINE HABITAT, CREATION OF ROCKY HABITAT, AND TEMPORARY INCREASED TURBIDITY DUE TO CONSTRUCTION AND MAINTENANCE.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: EIS

DESCRIPTORS: JETTY, CR 1, HABITAT

****
REF. NO.-0055

U.S. ARMY ENGINEER DISTRICT, PORTLAND. UNDATED.

FINAL ENVIRONMENTAL IMPACT STATEMENT-OPERATION AND MAINTENANCE OF THE CHANNELS AND BREAKWATERS IN YAQUINA BAY AND RIVER.

U.S. ARMY CORPS OF ENGINEERS, EXCERPTS 10 PP.

FINAL ENVIRONMENTAL IMPACT STATEMENT INCLUDING DISCUSSIONS OF AIR QUALITY IMPACTS, BIOTIC ELEMENTS, TURBIDITY AND TOXICITY, SILTATION, MODIFICATION OF CURRENT PATTERNS, AND ECOSYSTEMS IMPACTS RELATING TO DREDGING AND JETTY OPERATION AND MAINTENANCE. DREDGING OPERATIONS IN YAQUINA ESTUARY ARE RECURRENT EVENTS WHICH ARE FOLLOWED BY PERIODS OF COLONIZATION.

NATURE OF REFERENCE: BIO

REF. NO.-0055 (CONTINUED)

TYPE OF REFERENCE: EIS

DESCRIPTORS: JETTY, DREDGE/FILL, CR 1, PROTECT, HARBOR, EROSION

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REF. NO.-0132

U.S. ARMY ENGINEER DISTRICT, PORTLAND. 1976b.

NEHALEM WETLANDS REVIEW.

SUMMARY REPORT (DRAFT). U.S. ARMY CORPS OF ENGINEERS, PORTLAND, OR. 148 PP.

THE PORTLAND DISTRICT, U.S. ARMY CORPS OF ENGINEERS HAS THE RESPONSIBILITY TO CONTROL THE IMPACT OF ACTIVITIES IN THE NAVIGABLE WATERS OF THE COASTAL ECOSYSTEM. THIS REVIEW OF PHYSICAL, BIOLOGICAL, AESTHETIC, LAND AND WATER USE, SOCIAL AND ECONOMIC PROFILES OF THE NEHALEM ESTUARY, OREGON DEVELOPS GUIDELINES FOR PROBABILITY OF PERMIT APPROVAL BY THE CORPS FOR A VARIETY OF STRUCTURES AND ACTIVITIES IN A NUMBER OF HABITATS.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0133

U.S. ARMY ENGINEER DISTRICT, PORTLAND. 1976c.

SILETZ WETLANDS REVIEW.

U.S. ARMY CORPS OF ENGINEERS, PORTLAND, OR. 273 PP. AND APPENDICES.

THIS REVIEW OF PHYSICAL, BIOLOGICAL, AESTHETIC, LAND AND WATER USE, SOCIAL, POLITICAL AND ECONOMIC PROFILES OF THE SILETZ WETLANDS, OREGON PROVIDES BACKGROUND FOR ESTIMATING THE SUITABILITY OF CONSTRUCTION AND OTHER ACTIVITIES IN THE VARIOUS HABITATS. CONSTRAINTS ON THE GRANTING OF PERMITS FOR STRUCTURES AND ACTIVITIES ARE OUTLINED AND DISCUSSED.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

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REF. NO.-0136

U.S. ARMY ENGINEER DISTRICT, PORTLAND. 1976a.

ALSEA WETLANDS REVIEW.

REF. NO.-0136 (CONTINUED)

U.S. ARMY CORPS OF ENGINEERS, PORTLAND, OR. 345 PP. AND APPENDICES.

THIS REVIEW OF THE PHYSICAL, BIOLOGICAL, AESTHETIC, LAND AND WATER USE, SOCIAL, POLITICAL AND ECONOMIC PROFILES CONCERNS THE ALSEA BAY, OREGON AREA. IT IS INTENDED TO PROVIDE THE PUBLIC WITH BACKGROUND FOR ESTIMATING THE POSSIBILITY OF CORPS APPROVAL OF PERMIT APPLICATIONS FOR CONSTRUCTION AND OTHER ACTIVITIES IN THE WETLANDS OF THE AREA. GENERAL STANDARDS AND CRITERIA UPON WHICH THE DECISION TO PERMIT OR REJECT APPLICATIONS ARE DISCUSSED.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0240

U.S. ARMY ENGINEER DISTRICT, PORTLAND. 1975a.

CORPS OF ENGINEERS ACTIVITIES IN THE CHETEO, COQUILLE AND ROGUE RIVER ESTUARIES AND PORT ORFORD, OREGON.

DRAFT ENVIRONMENTAL IMPACT STATEMENT. U.S. ARMY CORPS OF ENGINEERS, PORTLAND, OR. EXCERPTS.

THE EXCERPTS INCLUDE A TABLE OF MAN'S ACTIONS AND EFFECTS ON THE ESTUARY AND A RELATED PHYSICAL INTERACTIONS MATRIX. THE EFFECTS OF DREDGING, JETTY CONSTRUCTION, BREAKWATER CONSTRUCTION, AND DREDGED MATERIAL DISPOSAL ARE PRESENTED IN THE TABLE. REFERENCE NUMBERS RELATE THE EFFECT LISTED IN THE TABLE WITH THE SAME EFFECT IN THE MATRIX. IN THE MATRIX THE PHYSICAL INTERACTIONS OF TWENTY-FIVE LIVING THINGS, PHYSICAL FACTORS WITHIN THE LIMITS OF THE ESTUARINE SYSTEM, AND EXTERNAL FACTORS AFFECTING THE ESTUARINE SYSTEM ARE MATCHED TO TWENTY-THREE OF THE SAME, PLUS THE ESTUARINE EFFECTS ON THE EXTERNAL WORLD.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: DREDGE/FILL, JETTY, BREAKWATER, CR 1

****
REF. NO.-0306

U.S. ARMY ENGINEER DISTRICT, PORTLAND. 1976d.

SOUTH BEACH MARINA (YAQUINA BAY SMALL BOAT BASIN), LINCOLN COUNTY, OREGON.

FINAL ENVIRONMENTAL IMPACT STATEMENT U.S. ARMY CORPS OF ENGINEERS AND SOIL CONSERVATIONS SERVICE. EXCERPTS.

A NEW MARINA IS PLANNED FOR YAQUINA BAY, OREGON. IT WILL CONSIST OF A ZONED BREAKWATER ENCLOSING 25 ACRES OF WATER. MOORAGE DOCKS TO ACCOMODATE 600 BOATS PLUS LANUCHING RAMPS. THE

REF. NO.-0306 (CONTINUED)

PATTERNS OF EROSION AND DEPOSITION OF SEDIMENTS WOULD CHANGE BOTH WITHIN THE BASIN AND AROUND TO BREAKWATER. DREDGING WOULD CAUSE TEMPORARY TURBIDITY AND DISTURBANCE TO AQUATIC COMMUNITIES. ABOUT 17 ACRES OF SHELLFISH HABITAT WOULD BE TEMPORARILY LOST, 1 ACRE OF EEL GRASS WOULD BE LOST AND MODIFICATION OF 30 ACRES OF FISH FEEDING AND MIGRATING AREAS WOULD OCCUR.THERE WOULD BE AN INCREASE IN POPULATIONS OF ROCK DWELLING LIFE SUCH AS ROCK FISH, LINGCOD AND CRABS AND SOME AQUATIC PLANTS DUE TO SUITABLE HABITAT IN THE ROCK BREAKWATER. THE SHORELINE PROTECTION AND PLANTING OF DISPOSAL AREAS WOULD STABILIZE DUNES AND PREVENT THE EXISTING EROSION PROBLEM IN THE PROJECT AREA. THE PROPOSED MARINA COMPLEX WOULD ATTRACT MORE TOURISTS TO YAQUINA BAY, AND THERE WOULD BE A SIGNIFICANT INCREASE IN WATER BASED RECREATIONAL ACTIVITY. THE PERMANENT WORK FORCE SHOULD INCREASE ALONG WITH AN INCREASE IN SEASONAL JOBS.

NATURE OF REFFRENCE: GENERAL

TYPE OF REFERENCE: EIS

DESCRIPTORS: HARBOR, BREAKWATER, RECREATION, CR 1, AQUATIC PLANTS

****
REF. NO.-0540

U.S. ARMY ENGINEER DISTRICT, SAVANNAH. 1973.

TYBEE ISLAND, GEORGIA BEACH EROSION CONTROL PROJECT.

FINAL EIS U.S.ARMY CORPS OF ENGINEERS. SAVANNAH, GA. 16 PP. + APPENDICES.

TYBEE ISLAND IS ONE OF A SERIES OF BARRIER ISLANDS OFF THE GEORGIA COAST. IT IS CHARACTERIZED BY SAND DUNES, TIDAL INLETS AND MARSHES AND A RESORT COMMUNITY IS LOCATED ON ITS EASTERN SHORE. A SERIES OF GROINS AND SEAWALLS ALONG THE SHORELINE HAVE BEEN CONSTRUCTED IN AN ATTEMPT TO ABATE EROSION BY STORM WINDS AND WAVES. RESTORATION AND PERIODIC NOURISHMENT OF 13,200 FEET OF OCEAN BEACH AND A RUBBLE STONE TERMINAL GROIN EXTENDING 800 FEET SEAWARD ARE PROPOSED. IN ADDITION TWO ADDITIONAL GROINS 760 FEET AND 670 FEET AND A 1200 FOOT EXTENTION TO THE TERMINAL GROIN ARE PROPOSED FOR POSSIBLE CONSTRUCTION IF FUTURE NEEDS ARISE. NO LONG TERM ADVERSE EFFECTS TO THE ENVIRONMENT ARE FORESEEN.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: EIS

DESCRIPTORS: CR 5, EROSION, LITTORAL PROCESSES, BENTHOS, GROIN, PROTECT, DREDGE/FILL

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REF. NO.-0512

U.S. ARMY ENGINEER DISTRICT, SEATTLE. 1971.

EVERETT HARBOR, WASHINGTON, TRAINING DIKE AND BREAKWATER.

FINAL EIS. U.S. ARMY CORPS OF ENGINEERS, SEATTLE, WA. 10 PP. + APPENDICES.

THE SEATTLE DISTRICT, U.S. ARMY CORPS OF ENGINEERS PROPOSES RAISING THE ELEVATION OF AN

REF. NO.-0512 (CONTINUED)

EXISTING TRAINING DIKE AND EXTENDING THE STRUCTURE AN ADDITIONAL 1500 FT. THIS ACTION WOULD PROVIDE PROTECTION FROM WAVE ACTION FOR VARIOUS INDUSTRIES AND THE BOAT BASIN. NEW HABITAT FOR MARINE FISH SUCH AS ROCKFISH AND GREENLING WOULD BE CREATED. NO APPRECIABLE CHANGE IN WATER QUALITY IS ANTICIPATED. THE PROJECT WOULD PERMANENTLY COVER ABOUT ABOUT 13 ACRES OF ESTUARY BOTTOM. TURBIDITY COULD HAVE TEMPORARY EFFECTS ON FISHERIES RESOURCES DURING CONSTRUCTION.

NATURE OF REFFRENCE: GENERAL

TYPE OF REFERENCE: EIS

DESCRIPTORS: BREAKWATER, CR 1, TRAINING, HABITAT

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REF. NO.-0352

U.S. ARMY ENGINEER DISTRICT, ST. PAUL. 1975f.

TWO HARBORS HARBOR OPERATION AND MAINTENANCE, LAKE COUNTY, MINNESOTA.

FINAL EIS. U.S. ARMY CORPS OF ENGINEERS, ST. PAUL, MN. 47 PP. + APPENDICES.

THE CORPS OF ENGINEERS WOULD CONTINUE OPERATION AND MAINTENANCE ACTIVITIES WITHIN TWO HARBORS HARBOR. PROPOSED PLANS CALL FOR THE REMOVAL OF APPROXIMATELY 6,000 CUBIC YARDS OF DREDGE MATERIAL TO COMPLETE THE PROJECT AUTHORIZED IN 1960. MAINTENANCE OF AN EXISTING BREAKWATER IS ALSO EXPECTED. IMPACTS INCLUDE MINOR CONGESTION IN THE HARBOR FROM MAINTENANCE ACTIVITIES, INCREASED TURBIDITY, AND ANY BLASTING DONE TO REMOVE ROCK WILL KILL FISH AND BENTHIC ORGANISMS.

NATURE OF REFFRENCE: BIO

TYPE OF REFERENCE: EIS

DESCRIPTORS: CR 8, DREDGE/FILL, FISH, BENTHOS, SEDIMENTATION, BREAKWATER, HABITAT

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REF. NO.-0354

U.S. ARMY ENGINEER DISTRICT, ST. PAUL. 1975b.

MARQUETTE AND PRESQUE ISLE HARBORS, OPERATION AND MAINTENANCE ACTIVITIES AND HARBOR RELATED SHORELINE EROSION, MARQUETTE, MICHIGAN.

FINAL EIS. U.S. ARMY CORPS OF ENGINEERS, ST. PAUL, MI. 74 PP + APPENDICES.

THE CORPS OF ENGINEERS WOULD CONTINUE TO CONDUCT OPERATION AND MAINTENANCE ACTIVITIES IN MARQUETTE AND PRESQUE ISLE HARBORS. THE PRINCIPAL ACTIVITIES INVOLVED ARE BREAKWATER MAINTENANCE, DREDGING, AND DREDGED MATERIAL DISPOSAL. ADVERSE ENVIRONMENTAL IMPACTS INCLUDE MINOR CONGESTION, AIR AND WATER CONTAMINATION, AND NOISE FROM ACTIVITES OF MAINTENANCE. INCREASED TURBIDITY AND DISRUPTION OF THE BENTHIC COMMUNITY WOULD RESULT

NATURE OF REFFRENCE: BIO

REF. NO.-0354 (CONTINUED)

TYPE OF REFERENCE: EIS

DESCRIPTORS: CR 8, BENTHOS, SEDIMENTATION, HARBOR, DREDGE/FILL, BREAKWATER

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REF. NO.-0417

U.S. ARMY ENGINEER DISTRICT, ST. PAUL. 1975e.

OPERATION AND MAINTENANCE ACTIVITIES IN PINE CREEK HARBOR AT ANGLE INLET, MINNESOTA, LAKE OF THE WOODS.

FINDING OF FACT. U.S. ARMY CORPS OF ENGINEERS, ST. PAUL, MN. 6 PP.

MAINTENANCE DREDGING OF THE PINE CREEK (MINNESOTA) CHANNEL WILL REQUIRE DISPOSAL OF DREDGE SPOILS ON LAND. THE DREDGING AND SPOILS DISPOSAL ARE EXPECTED TO HAVE EFFECTS ON EXISTING VEGETATION, SURFACE WATER QUALITY, BENTHOS, TURBIDITY, SEDIMENT TRANSPORT AND REDISTRIBUTION. HOWEVER, THE FINDING IS THAT NO SIGNIFICANT EFFECTS ON THE QUALITY OF THE HUMAN ENVIRONMENT WILL OCCUR. IN ADDITION, SOME DOUBT EXISTS AS TO WHETHER, FOR REASONS OF NESCESSITY, THE DREDGING SHOULD BE UNDERTAKEN.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: GOV REP

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

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REF. NO.-0418

U.S. ARMY ENGINEER DISTRICT, ST. PAUL. 1975c.

OPERATION AND MAINTENANCE ACTIVITIES IN BAUDETTE HARBOR, MINNESOTA, LAKE OF THE WOODS.

FINDING OF FACT. U.S. ARMY CORPS OF ENGINEERS, ST. PAUL, MN. 6 PP.

PERIODIC MAINTENANCE DREDGING HAS PREVIOUSLY KEPT AN ENTRANCE CHANNEL AND TURNING BASIN IN BAUDETTE HARBOR, MN, AT A DEPTH SUFFICIENT TO ALLOW MAIL, FREIGHT, PASSENGER AND RECREATIONAL CRAFT TO UTILIZE THE HARBOR. THIS USE HAS DECREASED AND FUTURE DREDGING MAY NOT BE UNDERTAKEN. HOWEVER, IF IT IS, NO SIGNIFICANT EFFECTS ON THE QUALITY OF THE HUMAN ENVIRONMENT ARE EXPECTED.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: GOV REP

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

best copy available

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REF. NO.-0420

U.S. ARMY ENGINEER DISTRICT, ST. PAUL. 1975d.

OPERATION AND MAINTENANCE ACTIVITES, BLACK RIVER HARBOR, LAKE SUPERIOR, MICHIGAN.

FINDING OF FACT. U.S. ARMY CORPS OF ENGINEERS, ST. PAUL, MN. 5 PP.

BLACK HARBOR SERVES AS A HARBOR-OF-REFUGE FOR SMALL CRAFT. PERIODIC DREDGING IS REQUIRED TO MAINTAIN THE ENTRANCE CHANNEL, INNER CHANNEL AND HARBOR BASIN. BOTH OPEN LAKE DUMPING AND BEACH NOURISHMENT ARE USED TO DREDGE SPOIL. ADVERSE EFFECTS FROM DREDGING ACTIVITIES ARE GENERALLY SHORT TERM WITH THE POSSIBLE EXCEPTION OF LOSS OF FISH AND BENTHIC HABITAT. NO SIGNIFICANT EFFECT ON THE QUALITY OF HUMAN ENVIRONMENT IS EXPECTED.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: GOV REP

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

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REF. NO.-0459

U.S. ARMY ENGINEER DISTRICT, ST. PAUL. 1976a.

LA POINTE HARBOR OPERATION AND MAINTENANCE ACTIVITIES, ASHLAND COUNTY WISCONSIN.

ENVIRONMENTAL ASSESSMENT. U.S. ARMY CORPS OF ENGINEERS, ST. PAUL, MN. 20 PP. + APPENDICES.

AN ENVIRONMENTAL ASSESSMENT IS PRESENTED OF THE IMPACTS OF OPERATION AND MAINTENANCE BY THE CORPS OF ENGINEERS IN LA POINTE HARBOR. THE BREAKWATER AND DREDGING ACTIVITIES WOULD HAVE THE GREATEST IMPACT ON THE ENVIRONMENT IT IS CONCLUDED THAT THE ADVERSE IMPACTS WOULD GENERALLY BE SHORT-TERM, THAT THE SOCIAL BENEFITS OUTWEIGH THESE IMPACTS, AND THAT AN ENVIRONMENTAL IMPACT STATEMENT WILL NOT BE PREPARED.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: EIA

DESCRIPTORS: HARBOR, BREAKWATER, DREDGE/FILL, SEDIMENTATION, HABITAT, FISH, BENTHOS, CR 8

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REF. NO.-0476

U.S. ARMY ENGINEER DISTRICT, ST. PAUL. 1976b.

SHORELINE EROSION MITIGATION PRESQUE ISLE HARBOR, MARQUETTE, MICHIGAN.

EIA. U.S. ARMY CORPS OF ENGINEERS, ST. PAUL, MN. 23 PP. + APPENDICES.

PRESENT EROSION OCCURRING AT PRESQUE ISLE HARBOR AT MARQUETTE, MICHIGAN HAS BEEN ATTRIBUTED TO THE PRESENCE OF A BREAKWATER. MITIGATIVE MEASURES CONSISTING OF A STEEL SHEET-PILE GROIN, INITIAL BEACH RESTORATION AND PERIODIC BEACH NOURISHMENT HAVE BEEN PROPOSED. THE PROPOSED

REF. NO.-0476 (CONTINUED)

MITIGATION PLAN IS FELT TO BE IMPORTANT TO THE SOCIAL AND ECONOMIC WELL-BEING OF THE RESIDENTS OF THE LOCAL AREA. ADVERSE IMPACTS ARE SHORT-TERM AND ARE OUTWEIGHED BY SOCIAL BENEFITS.

NATURE OF REFFRENCE: GENERAL

TYPE OF REFERENCE: EIS

DESCRIPTORS: GROIN, LITTORAL PROCESSES, PROTECT, CR 8

****
REF. NO.-0477

U.S. ARMY ENGINEER DISTRICT, ST. PAUL. 1975a.

LAKE SUPERIOR HARBORS OF REFUGE AT LUTSEN AND BEAVER BAY, COOK AND LAKE COUNTIES, MINNESOTA.

FINAL EIS. U.S. ARMY CORPS OF ENGINEERS, ST. PAUL, MI. 54 PP. + APPENDICES.

THE ST. PAUL DISTRICT, U.S. ARMY CORPS OF ENGINEERS PROPOSES TO CONSTRUCT HARBORS OF REFUGE AT LUTSEN AND BEAVER BAY, MINNESOTA. THESE HARBORS WOULD HELP PROVIDE A CONTINUOUS SYSTEM OF HARBORS OF REFUGE FOR SMALL CRAFT ALONG THE NORTH SHORE OF LAKE SUPERIOR AT INTERVALS OF 30 TO 40 MILES. THE LUTSEN HARBOR WOULD CONSIST OF A BAY WITH BREAKWATERS AND SOME ROCK EXCAVATION REQUIRED. BEAVER BAY WOULD INVOLVE TWO RUBBLEMOUND BREAKWATERS, AN EXCAVATED HARBOR BASIN AND THE PROVISION OF NAVIGATION AIDS. CONSTRUCTION OF BREAKWATERS WOULD COVER EXISTING LAKE BOTTOM AND DREDGING WOULD CAUSE TURBIDITY AND BURIAL OF BENTHIC ORGANISMS BY DUMPED SEDIMENTS.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: EIS

DESCRIPTORS: CR 8, HARBOR, BREAKWATER, PROTECT

****
REF. NO.-0547

U.S. ARMY ENGINEER DISTRICT, ST. PAUL. 1974.

ASHLAND HARBOR OPERATION AND MAINTENANCE, ASHLAND COUNTY, WISCONSIN.

DRAFT EIS. U.S. ARMY CORPS OF ENGINEERS, ST. PAUL, MN. 41 PP. + APPENDICES. 10.

THE CORPS OF ENGINEERS WOULD CONDUCT OPERATION AND MAINTENANCE ACTIVITIES WITHIN ASHLAND HARBOR TO MAINTAIN AUTHORIZED CHANNEL AND BASIN DEPTHS. MAINTENANCE OF THE EXISTING 8,000 FOOT BREAKWATER AND DREDGING OF 20,000 CUBIC YARDS OF MATERIAL IS ANTICIPATED OVER THE NEXT 10 YEARS. ENVIRONMENTAL EFFECTS OF THESE ACTIVITIES INCLUDE THE RESUSPENSION OF BOTTOM SEDIMENTS CAUSING INCREASED TURBIDITY. SOME OF THE SEDIMENTS AND ASSOCIATED CHEMICALS WILL BE TOXIC.

NATURE OF REFFRENCE: BIO

TYPE OF REFERENCE: EIS

REF. NO.-0547 (CONTINUED)

DESCRIPTORS: HARBOR, DREDGE/FILL, CR 8, SEDIMENTATION, FISH, BENTHOS

****
REF. NO.-0206

U.S. ARMY ENGINEER DISTRICT, WILMINGTON. 1973.

COASTAL ENGINEERING RESEARCH CENTER FIELD RESEARCH FACILITY AT DUCK, NORTH CAROLINA.

ENVIRONMENTAL IMPACT STATEMENT, U.S. ARMY CORPS OF ENGINEERS, WILMINGTON, NC. 36 PP. + APPENDICES.

THE PROJECT PROPOSES CONSTRUCTION, OPERATION, AND MAINTENANCE OF A FIELD RESEARCH FACILITY TO BE LOCATED ON A 175-ACRE SITE ON THE NORTH CAROLINA OUTER BANKS APPROXIMATELY 1 MILE NORTH OF DUCK, NORTH CAROLINA. THE RESEARCH FACILITY WILL CONSIST OF AN APPROXIMATELY 1,800-FOOT LONG OCEAN PIER AND ASSOCIATED ON SHORE FACILITIES. LAND ACQUISITION WILL REMOVE 175 ACRES FROM THE REAL ESTATE MARKET OF WHICH 9 ACRES WILL BE USED FOR ONSHORE FACILITIES AND APPROXIMATELY 166 ACRES WILL BE PRESERVED IN A NATURAL STATE. CONSTRUCTION OF THE PIER AND ONSHORE FACILITIES WOULD RESULT IN SOME INCREASED OCEAN TURBIDITY AND SOME DAMAGE TO THE DUNES. AESTHETICS COULD BE REDUCED BY THE PRESENCE OF THE FACILITY. PIER PILINGS WILL ALLOW ATTACHMENT OF MARINE LIFE AND SERVE AS SHELTERS AND FEEDING AREAS FOR HIGHER MARINE ORGANISMS. DURING CONSTRUCTION,THERE WILL BE SOME DESTRUCTION OF THE EXISTING DUNES. THE PIER WOULD BE A NAVIGATION OBSTRUCTION TO BOATS AND, INFREQUENTLY, TO MIGRATING BIRDS AND FISH.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: EIS

DESCRIPTORS: CR 6, PIER, MIGRATION, BIRDS, FISH, INVERTEBRATES

****
REF. NO.-0428

U.S. COAST GUARD. 1973a.

PROPOSED FIXED HIGHWAY BRIDGE ACROSS THE ATLANTIC INTERCOASTAL WATERWAY IN THE CITIES OF HOLLY HILL AND DAYTONA BEACH, VOLUSIA COUNTY, FLORIDA.

DRAFT EIS. DEPT OF TRANSPORTATION, U.S. COAST GUARD. 68 PP.

APPROVAL IS SOUGHT OF THE LOCATION AND PLANS OF A PROPOSED FIXED HIGHWAY BRIDGE OVER ATLANTIC INTERCOASTAL WATERWAY (HALIFAX RIVER) FROM FLOMICH STREET IN HOLLY HILL TO PLAZA BOULEVARD IN DAYTONA BEACH, FLORIDA. THE BRIDGE WILL FURNISH ADDITIONAL ACCESS FROM THE MAINLAND TO THE BEACH AREA. A SIGNIFICANT NUMBER OF HUMAN DWELLINGS WILL BE DISPLACED: A TOTAL OF 39 HOMES AND 3 BUSINESSES IS INVOLVED. NO OTHER SIGNIFICANT ADVERSE IMPACT IS FORESEEN.

NATURE OF REFFRENCE: RIO

TYPE OF REFERENCE: EIS

DESCRIPTORS: CR 5, CAUSEWAY, LAND TRANSPORT

****
REF. NO.-0445

U.S. COAST GUARD. 1973b.

THE PROPOSED RECONSTRUCTION OF THE HIGHWAY BRIDGES AND APPROACHES WHICH CARRY SOUTH CAROLINA STATE ROUTE 700 ACROSS CHURCH CREEK AT WADMALAW ISLAND IN CHARLESTON COUNTY, SOUTH CAROLINA.

FINAL EIS. U.S. COAST GUARD. 25 PP.

THE REPORT DESCRIBES THE ADMINISTRATIVE APPROVAL OF THE LOCATION AND PLANS FOR A FIXED HIGHWAY BRIDGE TO CARRY SOUTH CAROLINA ROUTE 700 ACROSS CHURCH CREEK AT WADMALAW ISLAND IN CHARLESTON COUNTY, SOUTH CAROLINA. THE PROJECT INCLUDES PROVISIONS FOR AN ADJACENT TEMPORARY DETOUR BRIDGE FOR MAINTAINING TRAFFIC DURING RECONSTRUCTION OF THE EXISTING HIGHWAY FACILITY AND NEW BRIDGE. THE BRIDGE PROJECT IS PROPOSED BASICALLY TO IMPROVE HIGHWAY SAFETY FOR TRAVEL OVER THE EXISTING ROADWAY AND BRIDGE AT CHURCH CREEK. MARSHLAND TO BE UTILIZED BY THE RECONSTRUCTED PERMANENT HIGHWAY FACILITY WILL BE IRREVERSIBLY COMMITTED. MARSHLAND TO BE UTILIZED BY THE TEMPORARY BRIDGE AND ROADWAY WILL BE RESTORED AFTER CONSTRUCTION OF THE NEW PERMANENT BRIDGE IS COMPLETED. TEMPORARY INCREASES IN SILTATION AND WATER TURBIDITY OF CHURCH CREEK ARE EXPECTED TO OCCUR DURING THE CONSTRUCTION STAGES OF THE PROJECT. (NTIS ABSTRACT)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: EIS

DESCRIPTORS: BRIDGE, LAND TRANSPORT, CR 5

****
REF. NO.-0404

U.S. DEPT. OF AGRICULTURE. 1973.

SHORE EROSION CONTROL TIMBER SHEET PILE BULKHEAD. PLAN VIEW.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE. EXCERPT.

FIVE PLAN VIEWS OF GROINS AND BULKHEADS SHOW METHODS OF INSTALLATION. NO TEXT ACCOMPANIES THEM.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: BULKHEAD, PROTECT, GROIN

****
REF. NO.-0457

U.S. DEPT. OF COMMERCE. 1976.

COASTAL FACILITY GUIDELINES.

WORKING PAPER. U.S. DEPT. OF COMMERCE, WASH. D.C. 96 PP. + APPENDICES.

THIS REPORT PROVIDES STATE COASTAL ZONE MANAGEMENT AGENCIES WITH INFORMATION AND

REF. NO.-0457 (CONTINUED)

RECOMMENDATIONS FOR DEVELOPING GUIDELINES FOR FACILITY DEVELOPMENT IN THE COASTAL ZONE. SECTION A OF THE REPORT PRESENTS A METHODOLOGY FOR IDENTIFYING AND INITIATING IMPLEMENTATION PROCEDURES FOR MANAGEMENT RECOMMENDATIONS ON SPECIFIC FACILITY TYPES. SECTION B AND C APPLY THE METHODOLOGY TO MARINAS AND POWER PLANTS IN THE STATES OF FLORIDA AND MARYLAND, RESPECTIVELY.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: HARBOR, BREAKWATER, HABITAT, SEDIMENTATION, FISH, SHELLFISH, BENTHOS

****
REF. NO.-0234

U.S. DEPT. OF INTERIOR. 1969.

FISHERY PUBLICATION INDEX 1955-1964.

U.S. FISH AND WILDLIFE SERVICE BUREAU OF COMMERCIAL FISHERIES. CIRCULAR 296.

INDEX OF PUBLICATIONS ISSUED BY THE U.S. FISH AND WILDLIFE SERVICE, 1955- 1964. INDEXED BY SERIES, AUTHOR, AND SUBJECT.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: BIBLIOGRAPHY

****
REF. NO.-0157

U.S. DEPT. OF INTERIOR, FISH AND WILDLIFE SERVICE. 1975a.

OIL AND GAS EXPLORATION AND DEVELOPMENT ACTIVITIES IN TERRITORIAL AND INLAND NAVIGABLE WATERS AND WETLANDS.

FEDERAL REGISTER. 40(231)55804-55807.

THE FINAL GUIDELINES WHICH PRESCRIBE THE OBJECTIVES, POLICIES, AND PROCEDURES TO BE FOLLOWED IN THE REVIEW OF PROPOSALS FOR OIL AND GAS EXPLORATION AND DEVELOPMENT ACTIVITIES IN OR AFFECTING NAVIGABLE WATERS THAT ARE SANCTIONED, PERMITTED, ASSISTED, OR CONDUCTED BY THE FEDERAL GOVERNMENT ARE PRESENTED.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0181

U.S. DEPT. OF INTERIOR, FISH AND WILDLIFE SERVICE. 1975h.

REVIEW OF FISH AND WILDLIFE ASPECTS OF PROPOSALS IN OR AFFECTING NAVIGABLE WATERS.

FEDERAL REGISTER 40(231):55810-55824.

THE FINAL GUIDELINES WHICH PRESCRIBE THE OBJECTIVES, POLICIES AND PROCEDURES TO BE FOLLOWED IN THE REVIEW OF PROPOSALS FOR WORK AND ACTIVITIES IN OR AFFECTING NAVIGABLE WATERS THAT ARE SANCTIONED, PERMITTED, ASSISTED, OR CONDUCTED BY THE FEDERAL GOVERNMENT ARE PRESENTED IN THE MAIN TEXT OF THE FISH AND WILDLIFE SERVICE'S NAVIGABLE WATERS HANDBOOK.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: CAUSEWAY, BRIDGE, DREDGE/FILL, PIER, JETTY, BULKHEAD, GROIN, REVETMENT, HARBOR

****
REF. NO.-0516

VAN WEELE, B.J. HERBICH, J.B. 1972.

WAVE REFLECTION AND TRANSMISSION FOR PILE ARRAYS.

PP. 1935-1953 IN PROC. 13TH COASTAL ENGINEERING CONFERENCE, JULY 10-14.

A GROUP OF PILES IN A SPECIFIC GEOMETRIC PATTERN MAY REPRESENT A PART OF A FOUNDATION SUPPORTED BY MULTIPLE PILINGS OR A POROUS SEA WALL OR OTHER TYPE OF POROUS COASTAL STRUCTURE. 'WAVE CHARACTERISTICS' OF SUCH A STRUCTURE WILL INCLUDE NOT ONLY THE WAVE TRANSMISSION BUT ALSO WAVE REFLECTION CHARACTERISTICS. MOST OF THE EXPERIMENTS IN THE PAST ON PILE GROUPS WERE MAINLY CONCERNED WITH WAVE TRANSMISSION CHARCTERISTICS AS A FUNCTION OF WAVE HEIGHT AND PERIOD. THE MAIN PURPOSE OF THESE PREVIOUS STUDIES WAS TO EVALUATE THE ABSORPTION CHARACTERISTICS OF PILE GROUPS, AND WAVE REFLECTIONS WERE GENERALLY NOT MEASURED, OR EVALUATED. VARIABLES IN THIS STUDY INCLUDED WAVE CHARACTERISTICS SUCH AS WAVE HEIGHT AND LENGTH AND THREE TYPES OF SYMMETRIC PILE ARRAYS, TWO PROVIDING CLEAR SPACING IN THE DIRECTION OF THE WAVE BETWEEN PILE ROWS AND ONE WITH A STAGGERED ARRANGEMENT. THE RESULTS PRESENTED IN DIMENSIONLESS FORM SHOW THE EFFECT OF PILE GEOMETRY AND WAVE STEEPNESS ON THE COEFFICIENT OF REFLECTION AND TRANSMISSIBILITY. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0101

VESPER, W.H. 1967.

BEHAVIOR OF BEACH FILL AND BORROW AREA AT SHERWOOD ISLAND STATE PARK WESTPORT, CONNECTICUT.

REF. NO.-0101 (CONTINUED)

U.S. ARMY CORPS OF ENGINEERS. CERC TECH. MEMO. NO. 20.25 PP.

IN 1957, TO RESTORE AND STABILIZE THE BEACH OF SHERWOOD ISLAND STATE PARK, SAND WAS PUMPED TO THE SHORE FROM AN OFFSHORE BORROW AREA BY A HYDRAULIC PIPELINE DREDGE. IN ADDITION, TWO TRAINING WALLS WERE CONSTRUCTED TO CONFINE THE INLET AT THE EAST END (UPDRIFT) AND A GROIN BUILT AT THE WEST END OF THE PARK. THE ENTIRE BEACH WAS WIDENED AND RAISED, AND IN ADDITION, AN EXTRA AMOUNT OF SAND WAS PLACED ON SHERWOOD POINT TO ACT AS A FEEDER BEACH. THE MATERIAL FROM THE BORROW AREA PROVED TO BE SUITABLE BEACH FILL. IN 1962, SURVEYS SHOWED THAT WHILE THE ACTUAL NET LOSS OF SAND FROM THE PROJECT AREA WAS SLIGHT, LOSSES FROM THE TIDAL ZONE IN THE UPDRIFT AND CENTRAL PARTS OF THE AREA WERE MAJOR. THESE LOSSES INDICATE THAT MAINTENANCE FILL IS NOW REQUIRED AND THAT THE CONSTRUCTION OF SEVERAL SHORT GROINS WEST OF SHERWOOD POINT (DOWNDRIFT) MAY BE DESIRABLE. DATA, IN GRAPHIC FORM, SHOW COMPARATIVE PROFILES OF THE AREA, CHANGES IN SHORELINE, AND COMPOSITE SIZE-DISTRIBUTION CURVES FOR SAND SAMPLES. TABLES SHOW QUANTITATIVE VOLUME CHANGES AND SAND SAMPLE DATA. INITIAL AND ANNUAL COST FIGURES ARE GIVEN.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: DREDGE/FILL, GROIN, STABILIZE, ECONOMICS, CUMULATIVE EFFECTS, CR 7

****
REF. NO.-0278

VESPER, W.H. 1965.

BEHAVIOR OF BEACH FILL AND BORROW AREA AT SEASIDE PARK, BRIDGEPORT, CONNECTICUT.

U.S. ARMY CORPS OF ENGINEERS. CERC TECH. MEMO. NO. 11. 24 PP.

COMPARATIVE SURVEY AND SAND SAMPLING DATA ARE ANALYZED TO DETERMINE THE BEHAVIOR OF BEACH FILL PLACED ON THE BEACH FROM AN OFFSHORE BORROW SOURCE. OVER A 5-YEAR PERIOD SUBSEQUENT TO INITIAL PLACEMENT, VOLUMETRIC LOSSES AVERAGING ABOUT 14,000 CY/YR FROM THE BEACH ZONE ABOVE MLW ARE NEARLY EQUALLED BY VOLUMETRIC GAINS IN THE UNDERWATER ZONE OF THE PROFILE WITH ONLY A COMPARATIVELY SMALL NET VOLUME (8,400 CUBIC YARDS FOR THE 5- YEAR PERIOD) INDICATED AS NET LOSS FROM THE FILL AREA. THE BORROW AREA, ABOUT 1,200 FEET OFFSHORE, WAS CONCLUDED TO BE SUFFICIENTLY DISTANT TO PRECLUDE INDUCEMENT OF OFFSHORE LOSS.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0311

VESPER, W.H. ESSICK, M.G. 1964.

A PICTORIAL HISTORY OF SELECTED STRUCTURES ALONG THE NEW JERSEY COAST.

REF. NO.-0311 (CONTINUED)

U.S. ARMY CORPS OF ENGINEERS CERC MISC. PAP. NO. 5-64. 99 PP.

PHOTOGRAPHS OF STRUCTURES ALONG THE NEW JERSEY SHORE WERE TAKEN IN THE PERIOD 1930 TO 1961. THE ACCOMPANYING TEXT DESCRIBES THE STRUCTURES AND THEIR RELATIVE EFFECTIVENESS AND LIFE OF THE VARIOUS TYPES OF STRUCTURES.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERFNCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0403

VILKS, G. SCHAFER, C.T. WALKER, D.A. 1975.

THE INFLUENCE OF A CAUSEWAY ON OCEANOGRAPHY AND FORAMINIFERA IN THE STRAIT OF CANSO, NOVA-SCOTIA, CANADA.

CAN. JOURNAL OF EARTH SCIENCE 12(12):2086-2102.

IN 1955, A CAUSEWAY WAS BUILT ACROSS THE STRAIT OF CANSO, NOVA SCOTIA, CANADA, PREVENTING IN THE STRAIT A FREE INTERACTION BETWEEN THE GULF OF ST. LAWRENCE AND ATLANTIC WATERS. IN ORDER TO EVALUATE A POSSIBLE IMPACT OF THIS BARRIER ON THE MARINE ENVIRONMENT, THE DISTRIBUTION OF FORAMINIFERA IN SEDIMENTS WAS INVESTIGATED. DATA WERE COLLECTED FROM EARLY MAY TO LATE AUGUST, 1973. DURING THIS PERIOD, THE WATER ON THE GULF OF ST. LAWRENCE SIDE OF THE CAUSEWAY WAS COLDER IN EARLY SPRING, BUT WARMER AND LESS SALINE DURING THE SUMMER AS COMPARED TO THE ATLANTIC SIDE. AT THE CAUSEWAY, THE SURFACE 1-3 CM OF THE BOTTOM SEDIMENT CONSISTS OF VERY SOFT AND BLACK TO DARK BROWN MUD ON BOTH SIDES. ON THE ATLANTIC SIDE, THESE FINE SEDIMENTS COVER BEDROCK; BUT ON THE GULF OF ST. LAWRENCE SIDE, THEY COVER SANDS AND GRAVELS. THE 76 FORAMINIFERAL SPECIES COLLECTED IN SURFACE SAMPLES WERE SUBJECTED TO CLUSTER ANALYSIS, WHICH DEFINED TWO DISTINCT GROUPS OF STATIONS SEPARATING THE FAUNA ON THE TWO SIDES OF THE CAUSEWAY. THE CHARACTERISTIC SPECIES OF THE GULF OF ST. LAWRENCE SIDE IS AMMONIA BECCARII. IN THE SUBSURFACE LAYERS THE DOMINANCE OF THIS SPECIES DECREASES WITHIN A ZONE EXTENDING 4 KM TO THE NORTH OF THE CAUSEWAY. ON THIS EVIDENCE IT WAS CONCLUDED THAT PRIOR TO THE CAUSEWAY, THE ATLANTIC WATERS EXTENDED AT LEAST 4 KM FURTHER TO THE NORTH. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: CAUSEWAY, BENTHOS, LAND TRANSPORT

****
REF. NO.-0513

VIRGINIA INSTITUTE OF MARINE SCIENC. 1976.

AN ASSESSMENT OF ESTUARINE AND NEARSHORE MARINE ENVIORNMENTS.

REF. NO.-0513 (CONTINUED)

FOR OBS, USFWS AS PART OF 1975 NAT'L WATER RESOURCES ASSESSMENT. SPEC. REPT. IN OCEAN ENGINEERING NO. 93(REVISED). 132 PP.

AN INTRODUCTION TO THE NATION'S ESTUARINE AND NEARSHORE MARINE PROBLEMS IS PRESENTED. A DESCRIPTION OF ESTUARINE AND NEARSHORE ENVIRONMENTS BY REGION IS GIVEN. THE STATUS OF ESTUARIES AND ESTUARINE MANAGEMENT IN THE LEGAL-INSTITUTIONAL SYSTEM, ESTUARINE RESOURCE HARVEST AND PROJECTIONS, AND IMPACTS OF PREDICTED WATER RESOURCE UTILIZATION ARE DISCUSSED

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUR

DESCRIPTORS: DREDGE/FILL, CR 4, CR 5, PROTECT, GROIN, REVETMENT, BULKHEAD, JETTY, CR 8

****
REF. NO.-0164

WAGNER, F.W. DURABB, E.J. 1976.

THE SINKING CITY.

ENVIRONMENT 18(4):32-39.

SITUATED IN A WETLAND AREA WITH MOST OF ITS LAND BELOW SEA LEVEL, NEW ORLEANS MUST HAVE AN EXTENSIVE LEVEE SYSTEM TO KEEP FLOOD WATERS OUT. NEW DEVELOPMENT OF THE LEVEE SYSTEM IS EXPECTED TO COST WELL OVER $100 MILLION AND TAKE YEARS TO COMPLETE. THE HISTORY OF DEVELOPMENT OF NEW ORLEANS, THE COST OF KEEPING THE CITY DRY, AND A REPRESENTATIVE USAGE FLOOD PROTECTION PLAN CURRENTLY BEING IMPLEMENTED ARE DISCUSSED. MANY ENVIRONMENTAL FACTORS MUST BE CONSIDERED BEFORE URBANIZATION OCCURS IN A WETLAND AREA SUCH AS THE LOUISIANA COASTAL ZONE.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUR

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0214

WALLEN, I.E. 1951.

THE DIRECT EFFECT OF TURBIDITY ON FISHES.

BULLETIN OF OKLAHOMA AGRICULTURAL AND MECHANICAL COLLEGE, STILLWATER, BIOLOGICAL SERIES NO. 2. 48(2):1-26.

TESTS WERE MADE TO DETERMINE THE DIRECT EFFECT OF MONTMORILLONITE CLAY ON 380 FISHES INVOLVING 16 FRESHWATER SPECIES. OBSERVABLE BEHAVIORAL REACTIONS THAT APPEARED AS A TURBIDITY EFFECT DID NOT DEVELOP UNTIL CONCENTRATIONS OF TURBIDITY NEARED 20,000 PPM., AND IN ONE SPECIES DID NOT APPEAR UNTIL TURBIDITIES REACHED 100,000 PPM. MOST FISHES ENDURED EXPOSURES TO MORE THAN

REF. NO.-0214 (CONTINUED)

100,000 PPM. OF TURBIDITY FOR A WEEK OR LONGER BUT FINALLY DIED AT TURBIDITIES OF 175,000 TO 225,000 PPM. FISHES THAT DIED DUE TO TURBIDITY HAD OPERCULAR CAVITIES AND GILL FILAMENTS CLOGGED WITH SILTY CLAY PARTICLES FROM THE WATER. THE CONDITIONS ALLOWING FISH TO SURVIVE IN SUBLETHALLY TURBID WATERS WERE MAINTENANCE OF MOVEMENT AND AERATION OF THE WATER. IT WAS CONCLUDED THAT NATURALLY OCCURING LEVELS OF TURBIDITY DUE TO MONTMORILLONITE SILT-CLAY IS NOT A LETHAL CONDITION AND SELDOM PRODUCES OBSERVABLE SYMPTONS IN JUVENILE OR ADULT FISHES. (MODIFIED AUTHOR ABSTRACT)

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0219

WALTON, G.F. 1976.

EVALUATION OF ESTUARINE SITE DEVELOPMENT LAGOONS. FINAL REPORT.

WATER RESOURCES RESEARCH INST. RUTGERS, THE STATE UNIV. OF NEW JERSEY. 167 PP.

A LARGE NUMBER OF ESTUARINE SITE DEVELOPMENT LAGOON SYSTEMS HAVE BEEN CONSTRUCTED ALONG THE NEW JERSEY SHORE WITH LITTLE, IF ANY, KNOWLEDGE REGARDING THE TRUE NATURE OF THE SYSTEM BEING CREATED AND ITS IMPACT ON THE EXISTING NATURAL ESTUARINE SYSTEM. A COMPREHENSIVE STUDY AND EVALUATION OF THESE LAGOON SYSTEMS WAS UNDERTAKEN INCLUDING CONSIDERATION OF THE PHYSICAL, CHEMICAL, BIOLOGICAL AND SOCIOECONOMIC CONDITIONS. CERTAIN GENERAL CONCLUSIONS CAN BE MADE. USING BARNEGAT BAY AS THE STANDARD, THE LAGOON WATERS WERE FOUND TO BE OF POORER QUALITY, DUE IN LARGE MEASURE TO THE RESTRICTED AND WEAKLY-ESTABLISHED WATER CIRCULATION PATTERNS IN THE LAGOON. CONSTRUCTION OF SITE DEVELOPMENT LAGOONS SYSTEMS HAS NOW BEEN SUSPENDED IN NEW JERSEY. (MODIFIED AUTHOR ABSTRACT)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0183

WALTON, J.C. MESSINGER, D.J. FAHNESTOCK, R.K. 1975.

ENVIRONMENTS OF EROSION AND DEPOSITION ON A RECURVED SAND SPIT, PRESQUE ISLE, ERIE, PA.

GEOL. SOC. AM. 7(1):130-131.

PRESQUE ISLE IS A SANDSPIT PENINSULA ON THE SOUTH SHORE OF LAKE ERIE AT ERIE, PA. THE PENINSULA IS CONNECTED BY A NARROW NECK AT THE SOUTHWESTERN END, WIDENING TOWARD THE NORTHEAST INTO A RECURVED SPIT WHICH SURROUNDS ERIE HARBOR. ITS ORIENTATION AND LOW RELIEF COUPLED WITH RECENT HIGH LAKE LEVELS HAVE INTENSIFIED BEACH EROSION. THE PENINSULA HAS FORMED SINCE THE LAKE LEVEL STABILIZED AT ITS PRESENT LEVEL SOMETIME AFTER EARLY LAKE ERIE APPROXIMATELY 11,000

REF. NO.-0183 (CONTINUED)

YEARS AGO. DUNE AND BEACH SANDS AND MINOR GRAVELS OF GLACIAL ORIGIN COMPRISE THE MAJORITY OF THE SEDIMENTS AND OVERLIE PLEISTOCENE BEACH DEPOSITS AND RILLS. DOMINANT NORTHEAST LONGSHORE DRIFT HAS RESULTED IN SIGNIFICANT SHORELINE CHANGES. BREACHES IN THE NECK HAVE OCCURRED IN 1828, 1832, 1874, AND 1917. MEASURES TO FORESTALL EROSION INCLUDE CONSTRUCTION OF SEAWALLS, BULKHEADS AND A GROIN SYSTEM ALONG THE NECK, AS WELL AS SAND REPLENISHMENT EROSION RESULTING IN TWO ROAD RELOCATIONS HAS STIMULATED CONSIDERATION OF A MORE EFFECTIVE BEACH PROTECTION SYSTEM. A DESCRIPTION OF EROSIONAL AND DEPOSITIONAL ZONES HAVE BEEN MADE USING BEACH GRAVEL LITHOLOGIES, SAND/GRAVEL RATIOS, TEXTURAL DISTRIBUTION OF NEARSHORE SAND, BEACH PROFILE CHANGES, AND BEACH PROCESSES OBSERVED DURING THE SUMMER OF 1974. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0011

WALTON, J.M. 1976.

AN ECOLOGICAL ASSESSMENT OF ARTIFICIAL REEFS IN CONJUNCTION WITH A PUBLIC FISHING PIER.

PAGE 46 IN 1975 ANNUAL REPORT. COLLEGE OF FISHERIES, UNIV. OF WASHINGTON.

WALTON BRIEFLY DESCRIBES THE PROGRESS OF AN EXPERIMENT TO ASSESS THE USE OF ARTIFICIAL REEFS NEAR PIERS TO IMPROVE THE FISHERY.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: PIER, HABITAT, FISH, CR 1, REEF

****
REF. NO.-0213

WALTON, T.L., JR. DEAN, R.G. 1976.

USE OF OUTER BARS OF INLETS AS SOURCES OF BEACH NOURISHMENT MATERIAL.

SHORE AND BEACH 45:13-19.

THE USE OF OUTER BARS OF INLETS AS SOURCES OF BEACH NOURISHMENT MATERIAL IS CONSIDERED AS AN ALTERNATIVE TO UTILIZING LAGOON AREAS BEHIND BARRIER ISLANDS, INTERIOR SHOAL AREAS OF INLETS AND OFFSHORE AREAS. USE OF OUTER BARS DEPENDS UPON THE QUALITY OF MATERIALS FROM THESE AREAS. THE ABILITY TO DREDGE IN A RELATIVELY HIGH WAVE AND CURRENT ENERGY AREA, AND THE POSSIBILITY OF SAND REMOVAL ADVERSELY AFFECTING ADJACENT SHORELINES. OUTER BARS OF INLET APPEAR TO CONTAIN RELATIVELY COURSE SAND DUE TO WAVE ENERGY AND DREDGING THESE BARS WILL REQUIRE IMMOVATIVE TECHNIQUES BECAUSE OF THIS ENERGY. REMOVAL OF SAND FROM OUTER BARS, ESPECIALLY IN LOW WAVE ENERGY AREAS, MAY CONTRIBUTE TO THE STABILITY OF ADJACENT BARRIER ISLANDS DIRECTLY BY BEACH

NOURISHMENT AND INDIRECTLY BY CAUSING MORE UNIFORM REFRACTION PATTERNS AND RESULTING LONGSHORE SAND TRANSPORT

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUR

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0528

WARNKE, D.A. 1973.

BEACH CHANGES IN A LOW-ENERGY COASTAL AREA IN FLORIDA WHICH IS IN THE PATHWAY OF RAPID URBANIZATION.

PP. 367-377 IN D.E. MORAN, J.E. SLOSSON, R.O. STONE, AND C.A. YELVERTON, EDS. GEOLOGY, SEISMICITY AND ENVIRONMENTAL IMPACT. ASSN. ENGIN. GEOLOGISTS SPEC. PUBL. UNIVERSITY PUBLISHERS, LOS ANGELES.

THE MAGNITUDE, CAUSES, AND SOME OF THE IMMEDIATE EFFECTS OF BEACH RETROGRESSION ON A STUDY SITE IN THE BIG BEND OF FLORIDA ARE PRESENTED. PLANE-TABLE SURVEYS WERE USED IN THE STUDY, AND WERE BRACKETED AROUND THE OCCURRENCE OF HURRICANES SINCE THEY ACCELERATE EROSION. IT IS RECOMMENDED THAT POSSIBLE EFFECTS OF HURRICANES BE CONSIDERED IN REGIONAL-PLANNING EFFORTS AND THAT THE PUBLIC BE MADE AWARE OF POSSIBLE EROSIONAL CHANGES.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUR

DESCRIPTORS: CR 3, REVETMENT, BULKHEAD

****
REF. NO.-0366

WASHINGTON DEPARTMENT OF ECOLOG. UNDATED.

SUMMARY OF SHORELINE PERMITS FOR MARINE WATERS.

ENCLOSURE IN LETTER FROM D. JAMISON, WASHINGTON DEPT. ECOL., OLYMPIA. 3 PP.

THIS SUMMARY COMPRISES A MATRIX OF ISSUING AGENCIES AND PERMIT APPLICATIONS APPROVED OR DENIED IN VARIOUS MARINE WATERWAYS IN THE STATE OF WASHINGTON. CONCURRENCE OR REVIEW ACTION TAKEN BY THE WASHINGTON DEPARTMENT OF ECOLOGY IS INCLUDED.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: INT

DESCRIPTORS: HARBOR, BULKHEAD, BREAKWATER, PIER, CR 1

****
REF. NO.-0029

WASHINGTON STATE DEPARTMENT OF FISHERIES. 1971.

CRITERIA GOVERNING THE DESIGN OF BULKHEADS, LANDFILLS, AND MARINAS IN PUGET SOUND, HOOD CANAL, AND STRAIT OF JUAN DE FUCA FOR PROTECTION OF FISH AND SHELLFISH RESOURCES.

OLYMPIA, WASHINGTON. 12 PP.

THE INCREASINGLY INTENSE USE OF THE SEASHORE OF THE STATE OF WASHINGTON FOR VARIOUS PURPOSES HAS REQUIRED THE ESTABLISHMENT OF GUIDELINES TO GOVERN DESIGN AND CONSTRUCTION OF FACILITIES THAT MIGHT AFFECT THE FISH AND SHELLFISH RESOURCES UNDER JURISDICTION OF THE DEPARTMENT OF FISHERIES. THE CRITERIA PRESENTED IN THIS REPORT WILL BE IMMEDIATELY IMPLEMENTED IN REVIEW OF APPLICATIONS TO CONSTRUCT FACILITIES ALONG THE SEASHORE, PARTICULARLY BULKHEADS, LANDFILLS, AND MARINAS IN ALL MARINE WATERS LYING EAST OF CAPE FLATTERY AT THE ENTRANCE TO THE STRAIT OF JUAN DE FUCA. IN ADDITION TO THESE CRITERIA, THE DEPARTMENT OF FISHERIES WILL ALSO PRESCRIBE GENERAL PROVISIONS, SUCH AS TIMING OR CONSTRUCTION METHODS. THESE CRITERIA ARE BASED ON SOUND BIOLOGICAL DATA AND WILL SUPPLEMENT WHATEVER REQUIREMENTS ARE SPECIFIED BY OTHER LOCAL, STATE, OR FEDERAL AGENCIES IN THEIR REVIEW OF THESE APPLICATIONS.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: GOV REP

DESCRIPTORS: CR 1, BULKHEAD, HARBOR, PROTECT, FISH, SHELLFISH, BREAKWATER

****
REF. NO.-0155

WATKINS, L. 1969.

CORROSION AND PROTECTION OF STEEL PILING IN SEAWATER.

U.S. ARMY CORPS OF ENGINEERS. CERC TECH. MEMO. NO. 27. 52 PP. + APPENDICES.

THE PURPOSE OF THIS REPORT IS TO ASSEMBLE IN ONE PAPER MUCH OF THE CURRENT KNOWLEDGE INVOLVING CORROSION OF STEEL PILING IN SEAWATER AND METHODS OF CORROSION PREVENTION. THE STUDY IS BASED ON A SURVEY OF LITERATURE. CAUSES OF CORROSION AND THE EFFECTS OF ENVIRONMENTAL CONDITIONS SUCH AS GALVANIC COUPLINGS, MARINE FOULING, ABRASION, OXYGEN CONCENTRATION AND OTHER FACTORS ARE PRESENTED. CORROSION OF BARE STEEL PILES AND TEST RESULTS ON PROTECTIVE COATINGS FOR STEEL ARE INCLUDED. FACTORS INVOLVED IN THE USE OF CATHODIC PROTECTION AND CONCRETE JACKETS TO PROTECT STEEL PILES ARE EXPLAINED. THE CORROSION RATES OF PLAIN CARBON AND LOW-ALLOY STEELS ARE COMPARED. REFERENCES SURVEYED SHOW THAT FLAME- SPRAYED ZINC SEALED WITH SARAN OR VINYL IS POSSIBLY THE BEST COATING SYSTEM TESTED. CONCRETE JACKETS OF PROPER DESIGN AND CONSTRUCTION ARE REPORTED TO BE VERY EFFECTIVE. CATHODIC PROTECTION ALSO PROVIDES GOOD CORROSION PROTECTION. COMBINATIONS OF CATHODIC PROTECTION WITH COATINGS OR CONCRETE JACKETS MAY BE ADVANTAGEOUS. THERE IS GREAT NEED FOR MORE DATA FROM WHICH TO DETERMINE THE MOST ECONOMICAL METHOD OF PROTECTING STEEL PILING IN SEAWATER. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

REF. NO.-0155 (CONTINUED)

DESCRIPTORS: BULKHEAD, PIER, PILING, INVERTEBRATES

****
REF. NO.-0437

WATTS, G.M. VALLIANOS, L. JACHOWSKI, R.A. 1973.

GENERAL REPORT ON CONTROLLING LITTORAL DRIFT TO PROTECT BEACHES, DUNES, ESTUARIES AND HARBOR ENTRANCES.

U.S. ARMY CORPS OF ENGINEERS, CERC REPRINT NO. 25-73. 26 PP.

THE REPORT CONTAINS A SUMMARY OF TECHNIQUES USED IN THE UNITED STATES FOR CONTROLLING LITTORAL DRIFT TO PROTECT OR STABILIZE BEACHES AND DUNES AND TO PROTECT ENTRANCES TO HARBORS AND ESTUARIES. REPORT DESCRIBES PRESENT PRACTICES FOLLOWED IN THE DESIGN OF ARTIFICIAL FILLS AND PERIODIC NOURISHMENT OPERATIONS, INCLUDING ENVIRONMENTAL FACTORS THAT MUST BE CONSIDERED IN THE BORROW OF SUITABLE MATERIAL FOR BEACH FILLS. IT POINTS OUT THAT ALTHOUGH GROINS ARE WIDELY USED, A BETTER UNDERSTANDING OF THE FUNCTIONAL AND STRUCTURAL DESIGN OF THESE STRUCTURES IS NEEDED.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

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REF. NO.-0530

WEBB, D.A. 1975.

SOME ENVIRONMENTAL ASPECTS OF CREOSOTE.

AMERICAN WOOD-PRESERVER'S ASSOCIATION. 5 PP.

TWO AREAS OF ENVIRONMENTAL INTEREST FOR CREOSOTE ARE DISCUSSED. CREOSOTE TREATED WOOD PILING AND BULKHEAD MATERIALS AS USED IN WATERFRONT STRUCTURES DO NOT SHOW, AT THIS TIME, ANY POTENTIAL HAZARD TO THE ENVIRONMENT. THE ENVIRONMENTAL PROTECTION AGENCY INDICATED THAT BIRD AND FISH TOXICITY DATA WOULD BE NECESSARY TO ASSIST IN THE MONITORING OF AN ACCIDENTAL CREOSOTE SPILL SITUATION. DATA ARE GIVEN FOR AN EIGHT-DAY DIETARY FEEDING STUDY WITH BOBWHITE QUAIL AND MALLARD DUCK; AND FOR A FISH BIOASSAY USING BLUE GILL, GOLDFISH AND RAINBOW TROUT. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: BULKHEAD, PILING

****
REF. NO.-0086

WEBB, J.W. DODD, J.D. 1976.

VEGETATION ESTABLISHMENT AND SHORELINE STABILIZATION: GALVESTON BAY, TEXAS.

U.S. ARMY CORPS OF ENGINEERS. CERC TECH. PAP. NO. 76-13. 74 PP. 10.

TECHNIQUES FOR SHORELINE STABILIZATION WITH VEGETATION AND THE ASSOCIATED ENVIRONMENT ARE PRESENTED. STUDIES WERE CONDUCTED ON THE ADAPTATION OF SPECIES FOR SHORELINE STABILIZATION, USE OF WAVE-STILLING DEVICES, AND EFFECTS OF FERTILIZERS ALONG THE NORTH SHORE OF EAST BAY, TEXAS. GIANT REED AND GULF CORDGRASS WERE BEST ADAPTED FOR THE UPPER ZONE, AND SMOOTH CORDGRASS WAS BEST ADAPTED FOR PLANTING BELOW MEAN HIGH TIDE. (MODIFIED AUTHOR ABSTRACT)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: CR 3, PROTECT, BULKHEAD

****
REF. NO.-0153

WEYMOUTH, O.F. MAGOON, O.T. 1968.

PROTOTYPE INVESTIGATION OF STABILITY OF QUADRIPOD COVER LAYER, SANTA CRUZ HARBOR, CA.

U.S. ARMY CORPS OF ENGINEERS. CERC REPRINT NO. 2-69. 10 PP.

THE PURPOSE OF THIS PAPER IS TO PRESENT THE RESULTS OF A FOUR YEAR STUDY OF THE STABILITY OF A PROTOTYPE BREAKWATER ARMOR LAYER COMPOSED OF 28-TON CONCRETE QUADRIPODS. THE STUDY WAS CONDUCTED BY MEASURING THE INCIDENT WAVE HEIGHT AND THE QUADRIPOD MOVEMENTS DURING THIS PERIOD. THE ULTIMATE GOAL OF THIS STUDY IS THE VERIFICATION OF EMPIRICAL BREAKWATER DESIGN EQUATIONS. BASED ON REPEATED MEASUREMENTS OF SELECTED POINTS IN THE SEAWARD PORTION OF THE SANTA CRUZ WEST JETTY, IT IS CONCLUDED THAT NO DISPLACEMENTS HAVE OCCURRED THAT APPROACH THOSE TO BE EXPECTED FROM FAILURE, THUS NO VERIFICATION OF THE BREAKWATER STABILITY EQUATION IS POSSIBLE AT THIS TIME. (MODIFIED AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0241

WHITAKER, D. 1976.

SLAUGHTER CREEK SOLUTION.

WATER SPECTRUM 8(2):35-36.

AN ACCOUNT IS GIVEN OF THE SUCCESSFUL EXPERIENCE BY THE CORPS OF ENGINEERS TO CONVERT DREDGED

REF. NO.-0241 (CONTINUED)

MATERIAL INTO USEFUL WETLANDS. IN THE BALTIMORE DISTRICT, NEW MARSHLAND WAS CREATED ON MARYLAND'S EASTERN SHORE WITH THE USE OF MATERIAL DREDGED FROM A SECONDARY TRIBUTARY OF CHESAPEAKE BAY.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: DREDGE/FILL, CR 6

****
REF. NO.-0052

WHITE, S.T. 1975.

THE INFLUENCE OF PIERS AND BULKHEADS ON THE AQUATIC ORGANISMS IN LAKE WASHINGTON.

MASTER OF SCIENCE THESIS. UNIV. OF WASH. COLLEGE OF FISHERIES. 107 PP.

THE DEVELOPMENT OF LAKE WASHINGTON HAS PROCEEDED WITH LITTLE REGULATION EXCEPT FOR THE GENERAL REGULATIONS, ZONING ORDINANCES AND BUILDING CODES OF VARIOUS AREAS AROUND THE LAKE. THIS STUDY WAS INITIATED TO : (1) OBTAIN GREATER INSIGHT INTO THE INFLUENCES OF SHORELINE DEVELOPMENT AND ITS RELATED PHYSICAL AND BIOLOGICAL FACTORS WHICH MAY STRESS THE FISH AND FISH FOOD ORGANISMS IN THE LAKE; (2) IDENTIFY AND PURSUE RESIDENTIAL, COMMERCIAL, AND INDUSTRIAL PRESSURES WHICH HAVE INTENSIFIED IN RECENT YEARS; (3) DOCUMENT AND EVALUATE WETLANDS AND OTHER SHALLOW WATER HABITATS DAMAGED AND/OR DESTROYED DUE TO UNREGULATED DEVELOPMENT; AND (4) OBTAIN BIOLOGICAL DATA TO ASSIST IN DEVELOPING ASSESSMENT OF THE IMPACTS ASSOCIATED WITH PIERS, FILLS, AND BULKHEADS. THE MAJORITY OF PIERS AND BULKHEADS OCCUR WITHIN THE LITTORAL REGION OF LAKE WASHINGTON, AND IT IS OBVIOUS THAT THEIR GREATEST INFLUENCE WOULD BE EXPECTED TO OCCUR IN THAT REGION.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: THESIS

DESCRIPTORS: PIER, BULKHEAD, BENTHOS, FISH, INVERTEBRATES, CR 1

****
REF. NO.-0300

WICK, W.Q. 1973.

ESTUARIES UNDER ATTACK.

WATER SPECTRUM. 5(3):12-18.

WICK PRESENTS A PERSONAL OVERVIEW OF THE RAPID DEGRADATION OF THE WORLD'S ESTUARIES. SUGGESTIONS ARE MADE IN COMPROMISE TO COMPLETE PROTECTION OF A SYSTEM OR RECLAIMING THE LAND AND THUS ELIMINATING THE ESTUARY. THIS COMPROMISE IS IN THE FORM OF INTELLIGENT MANAGEMENT THROUGH PLANNING AND ZONING.

NATURE OF REFERENCE: BIO

REF. NO.-0300 (CONTINUED)

TYPE OF REFERENCE: PUB

DESCRIPTORS: CR 1, HARBOR, GROIN, BREAKWATER

****
REF. NO.-0009

WILDER, C.R. KOLLER, E.R. 1971.

MODULAR SYSTEMS FOR SHORE PROTECTION.

CIVIL ENGINEERING-ASCE 41(10): 60-63.

SEVERAL MACHINE-PRODUCED, PRECAST SHORE PROTECTION MODULAR UNITS ARE DESCRIBED. THEIR INSTALLATION, EFFECTIVENESS, COST, AND CURRENT APPLICATIONS ARE ALSO DISCUSSED.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: REVETMENT, PROTECT, EROSION, GROIN, BREAKWATER

****
REF. NO.-0150

WILLIAMS, S.J. DUANE, D.B. 1975.

CONSTRUCTION IN THE COASTAL ZONE: A POTENTIAL USE OF WASTE MATERIALS.

MARINE GEOLOGY 18:1-15.

THE INNER NEW YORK BIGHT, AT THE HEAD OF THE HUDSON SHELF CHANNEL, HAS BEEN THE SITE FOR OCEAN DISPOSAL OF VARIOUS WASTE PRODUCTS SINCE AT LEAST 1888. NATURAL CHANNEL-LIKE BATHYMETRY EXPRESSED IN 1895 IS TODAY A SERIES OF HILLS RAISING TO WITHIN 12M (40 FT.) OF THE WATER SURFACE SUPERIMPOSED UPON A BROAD LOBATE MOUND. THIS TOPOGRAPHIC INVERSION CREATED OVER THE PAST NINE DECADES IS ATTRIBUTABLE TO DISPOSAL OF MATERIALS (SOIL, SAND, AND STONE) OF VARYING COMPOSITION GENERATED DURING CONSTRUCTION IN THE NEW YORK METROPOLITAN AREA. DATA INDICATE APPROXIMATELY 765 X 10(6)M(3) (1X10(9)YD(3)) OF WASTE HAS BEEN DUMPED IN THAT REGION FROM 1888 TO 1934. ISOPOCH MAPS, SEA-FLOOR PROFILES, SEISMIC RECORDS, AND VIBRATORY CORES SHOW MUCH OF THE FILL HAS REMAINED IN PLACE IN SPITE OF BOTTOM CURRENTS OF APPROXIMATELY 25/CM/SEC (0.5 KNOTS) AND A WAVE CLIMATE OF H(S) = 0.76M (2.5 FT.): T = 5-15 SEC. MAN MADE ISLANDS PROPOSED FOR THE INNER CONTINENTAL SHELF FOR SITING POWER, PORT, OR RECREATIONAL FACILITIES WILL USE LARGE VOLUMES OF STABLE MATERIAL FOR CORE FILL, WHICH COULD BE WASTE MATERIALS SUCH AS THOSE DESCRIBED. EFFECTIVE REGIONAL COASTAL-ZONE PLANNING SHOULD RECOGNIZE USES FOR PAST AND FUTURE WASTE MATERIAL AS SUCH PRACTICES WOULD CONSERVE SAND AND GRAVEL RESOURCES FOR OTHER HIGH VOLUME NEEDS (SHORELINE NOURISHMENT AND PROTECTION AND CONSTRUCTION AGGREGATE) AND ALLEVIATE SOME OF THE SITE-SELECTION PROBLEMS ON LAND DISPOSAL OF WASTE. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

REF. NO.-0150 (CONTINUED)

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

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REF. NO.-0149

WILSON, B.W. 1965.

ANALYSIS OF WAVE FORCES ON A 30-INCH DIAMETER PILE UNDER CONFUSED SEA CONDITIONS.

U.S. ARMY CORPS OF ENGINEERS. CERC TECH. MEMO NO. 15. 85 PP.

THIS PAPER DISCUSSES METHODS THAT WERE DEVELOPED IN THE PERIOD 1955-1957 IN THE ANALYSIS OF WAVE FORCE MEASUREMENTS ON A 30 INCH DIAMETER TEST PILE IN A WATER DEPTH OF 40 FT IN THE GULF OF MEXICO. PROCEDURES FOR REDUCING THE RAW DATA TO A FORM SUITABLE FOR DIGITAL COMPUTER OPERATIONS ARE OUTLINED. MEASUREMENTS OF WAVE ELEVATION, AT THE PILE, OBTAINED BY MOTION PICTURE CAMERA, WERE SUCCESSFULLY CHECKED WITH MEASUREMENTS OF VERTICAL REACTION ON THE DOUBLE-HINGED PILE, SUITABLY ADJUSTED BY A NUMERICAL FREQUENCY RESPONSE OPERATOR TECHNIQUE. NUMERICAL FILTER TECHNIQUES WERE USED TO ERASE UNWANTED VIBRATIONAL FREQUENCIES FROM THE RECORDS AND FREQUENCY RESPONSE OPERATORS USED ALSO TO DERIVE HORIZONTAL VELOCITY AND ACCELERATION COMPONENTS FROM THE RECORDS. IT WAS FOUND, HOWEVER, THAT CALCULATIONS OF TOTAL FORCE BASED ON THE MEASURED HORIZONTAL REACTIONS AT THE TWO SUPPORTING HINGES CLEARLY COULD NOT CORRELATE WITH WAVE ELEVATION. THIS LED TO A SEARCH FOR INDENTIFICATION OF CONFUSING WAVE SYSTEMS WHICH ULTIMATELY APPEARED TO REVEAL THEMSELVES AS INDEPENDENT WIND, SEA AND SWELL BEARING AT AN ANGLE OF 57 DEGREES 30' TO EACH OTHER. THE USE OF AN EQUIVALENT FORCE FOR CORRELATTON WITH THE VELOCITY AND ACCELERATION COMPONENTS IS FINALLY JUSTIFIED BY A PILOT ANALYSIS OF SYNTHETIC DATA, FROM WHICH IT WAS FOUND POSSIBLE TO RECOVER FROM THE ANALYSIS TECHNIQUE THE VALUES OF DRAG AND INERTIAL COEFFICIENTS INPUT INTO THE SYNTHETIC DATA. PRESENTATION OF OVER-ALL ANALYSIS RESULTS OF THE FIELD DATA IS RESERVED FOR A SUBSEQUENT PAPER. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0285

WILSON, G.C. 1973.

PARK SERVICE GIVING UP FIGHT AGAINST NATURE ON BEACHES.

THE WASHINGTON POST, MONDAY, SEPT. 24.

A DISCUSSION OF THE NATIONAL PARK SERVICE CHANGE IN POLICY TO STOP FIGHTING BEACH EROSION IS PRESENTED. THE NEW POLICY WAS APPROVED BY THE AGENCY BUT THE OFFICIAL ANNOUNCEMENT WAS HELD UP SO THAT CONGRESS COULD BE BRIEFED. THE SERVICE CONCLUDED THAT IT WAS NOT WORTH SPENDING MILLIONS OF TAXPAYER'S DOLLARS ON EROSION CONTROL PLANS THAT DID NOT WORK AND THAT NATURE SHOULD BE ALLOWED TO FOLLOW ITS COURSE. THE 72 MILE STRIP OF CAPE HATTERAS NATIONAL SEASHORE FROM NANTEO (JUST SOUTH OF NAGS HEAD) DOWN TO OCRACOKE ISLAND, NC, IS WHERE THE NEW POLICY

REF. NO.-0285 (CONTINUED)

WOULD BE IMPLEMENTED FIRST. LOCAL RESIDENTS ARE HOPING TO STOP THE NEW PLAN IN CONGRESS.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0203

WILSON, J.N. 1960.

THE EFFECTS OF EROSION, SILT, AND OTHER INERT MATERIALS ON AQUATIC LIFE.

IN: C. TARZWELL (ED.) BIOLOGICAL PROBLEMS IN WATER POLLUTION. U.S.P.H.S. PUB W 60-3. PP. 269-271.

THE EFFECT OF TURBIDITY AND SILTATION ON THE PENETRATION OF LIGHT, BOTTOM- DWELLING ANIMALS AND PLANTS. FISH SPAWNING, THE CAPACITY OF NATURAL WATERS TO ASSIMILATE WASTES, AND SHELLFISH IN ESTUARIES IS DISCUSSED. IT WAS AGREED THAT THE PRESENT STATE OF KNOWLEDGE DOES NOT ALLOW ESTABLISHMENT OF FIRM CRITERIA IN REGARD TO PRESCRIPTION OF STANDARDS FOR PERMISSIBLE LEVELS OF TURBIDITY AND SETTLEABLE INERT MATERIALS IN WATERS. HOWEVER, IT WAS AGREED THAT MUCH REALISTIC CONTROL AND PROGRESS HAS BEEN MADE WHERE PROBLEMS ARE HANDLED INDIVIDUALLY AND CONTROL MEASURES MEET THE NEEDS IN SPECIFIC CASES

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0496

WILSON, W.B. 1950.

THE EFFECTS OF DREDGING ON OYSTERS IN COPANO BAY, TEXAS.

ANNUAL REP. MARINE LAB. TEXAS GAME FISH OYSTER COMM. 50 PP.

A STUDY WAS CONDUCTED IN COPANO BAY, TEXAS TO DETERMINE THE DISTANCE SUSPENDED MATERIAL TRAVELS FROM A DREDGE, THE AMOUNT AND TYPE OF SUCH MATERIAL, AND THE EFFECTS OF SEDIMENTATION AND SUSPENDED MATERIAL ON AN OYSTER REEF. DATA PRESENTED IS BASED ON ONE HYDRAULIC DREDGING OPERATION. SEVERAL TYPES OF TESTS WERE CONDUCTED. SURVIVAL PERIODS UNDER TURBID CONDITIONS ARE EXTREMELY VARIABLE, DEPENDING ON THE TYPE OF SEDIMENTARY MATERIAL THE OYSTERS ARE COVERED WITH.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

REF. NO.-0496 (CONTINUED)

DESCRIPTORS: DREDGE/FILL, CR 3, SEDIMENTATION, SHELLFISH

****
REF. NO.-0326

WOLCOTT, T.G. 1977.

THE EFFECTS OF BULKHEADING ON THE GHOST CRAB (OCYTODE QUADRATA).

ASST. PROF ZOOLOGY AND MARINE SCIENCE. NORTH CAROLINA STATE UNIVERSITY, RALEIGH NC. PERS. COMM.

BULKHEADS PREVENT THE GHOST CRAB (OCYTODE QUADRATA) FROM GAINING ACCESS TO THE DUNE AREAS BEHIND THE BEACH. DUNE AREAS ARE IMPORTANT TO THE GHOST CRABS' SURVIVAL AS THESE ARE AREAS WHERE THE WATER TABLE IS FAR ENOUGH BELOW THE SAND SURFACE TO ALLOW DEEP ENOUGH BURROWING TO AVOID EXTREME COLD WINTER TEMPERATURES. DR. WALCOTT IS CURRENTLY SEEKING FUNDING TO CONDUCT ADDITIONAL RESEARCH ON THIS PROBLEM.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: INT

DESCRIPTORS: BULKHEAD, CR 5, CR 6, CR 7, CRUSTACEAN

****
REF. NO.-0069

WONG, V.D. 1970.

MOSS LANDING HARBOR, CALIFORNIA: A CASE HISTORY.

SHORE AND BEACH. 38(2):26-39.

THE COASTAL EVNIRONMENT IS A DELICATE SYSTEM OF SHORE PROCESSES WHICH, AT BEST, ONLY REACHES A STATE OF DYNAMIC EQUILIBRIUM. A MAN-MADE STRUCTURE IS ABLE TO UPSET ANY NATURAL BALANCES, RESULTING IN DRAMATIC CHANGES IN THE COASTLINE. THIS IS A REPORT ON THE CONSTRUCTION AND MAINTENANCE OF THE ENTRANCE CHANNEL AND PROTECTIVE JETTIES AT MOSS LANDING HARBOR, CALIFORNIA, AND THE EFFECTS THESE STRUCTURES MAY HAVE HAD ON THE NEARBY COASTAL ENVIRONMENT. BASIC SHORE PROCESSES PERTINENT TO THE AREA ARE DESCRIBED BEFORE MOSS LANDING HARBOR IS INVESTIGATED. THE PROBLEMS AT MOSS LANDING HARBOR WERE NOT AS GREAT AS INITIALLY ANTICIPATED DUE TO UNIQUE LITTORAL CURRENT PATTERNS AND THE PRESENCE OF AN OFFSHORE CANYON. (MODIFIED AUTHOR ABSTRACT)

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: HARBOR, EROSION, JETTY, CR 1, DREDGE/FILL

****
REF. NO.-0110

WOODHOUSE, W.W., JR. SENECA, E.D. BROOME, S.W. 1972.

REF. NO.-0110 (CONTINUED)

MARSH BUILDING WITH DREDGE SPOIL IN NORTH CAROLINA.

N CAROLINA ST. UNIV. AGRIC. EXPT. STAT. BULL. 445. 28PP.

WORK WAS INITIATED IN THE FALL OF 1969 ALONG THE NORTH CAROLINA COAST ON THE STABILIZATION OF DREDGE SPOIL WITH SPARTINA ALTERNIFLORA. STUDIES INCLUDED METHODS OF PROPAGATION AND ESTABLISHMENT, GROWTH RATES, FACTORS AFFECTING GROWTH, AND SUBSTATE SAND ELEVATIONAL EFFECTS. REASONABLY SATISFACTORY METHODS AND PROCEDURES HAVE BEEN DEVELOPED AND SOME TENATIVE GUIDELINES FORMULATED FOR THE USE OF THIS PLANT FOR STABILIZATION OF DREDGE SPOIL.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUR

DESCRIPTORS: DREDGE/FILL, STABILIZE, LAND PLANTS, CR 5, CR 6

****
REF. NO.-0289

WOODHOUSE, W.W., JR. SENECA, E.D. BROOME, S.W. 1976.

PROPAGATION AND USE OF SPARTINA ALTERNIFLORA FOR SHORELINE EROSION ABATEMENT.

U.S. ARMY CORPS OF ENGINEERS. CERC TECH. REP. NO. 76-2. 72 PP.

EXPERIMENTAL PLANTINGS TO STABILIZE ERODING SHORELINES IN BOGUE SOUND IN 1974 WERE SUCCESSFUL. BETTER STANDS WERE PRODUCED ON SITES SUBJECT TO SEVERE WAVE STRESS BY REDUCING TRANSPLANT SPACING TO 1.5 TO 2 FEET APART. RHIZOMES WITHOUT WELL-DEVELOPED CULMS ATTACHED WERE WORTHLESS AS PROPAGULES WITHIN THE INTERTIDAL ZONE. SEEDING WAS UNSUCCESSFUL DUE TO EXPOSURE TO EXCESSIVE WAVE ENERGY. DIFFERENCES BETWEEN PLANTS FROM DIFFERENT SOURCES DECREASED WITH TIME BUT A LOCAL PLANT STOCK WAS SUPERIOR TO AN INTRODUCED STOCK UNDER STRESSED CONDITIONS THROUGH THE FIRST GROWING SEASON. GREENHOUSE-GROWN PLANTS WERE MORE COSTLY BUT NO BETTER THAN FIELD-GROWN PLANTS. SOME OF THE ADAPTATION OF SPARTINA ALTERNIFLORA TO THE LOW OXYGEN SUPPLY AND THE AMMONIUM FORM OF NITROGEN CHARACTERISTIC OF THE INTERTIDAL ZONE WERE CONFIRMED BY LABORATORY STUDIES. PLANTS WERE DETRIMENTALLY AFFECTED BY FORCED AERATION OF ROOTS AND THE SUBSTITUTION OF NITRATE FOR AMMONIUM. STANDS OF SPARTINA ALTERNIFLORA CONTINUED TO RESPOND TO HIGH IMPUTS OF NITROGEN AND PHOSPHORUS THROUGH THE FOURTH YEAR. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: RIO

TYPE OF REFERENCE: PUR

DESCRIPTORS: PROTECT, EROSION, LAND PLANTS, CR 5

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REF. NO.-0295

WOODHOUSE, W.W., JR. SENECA, E.D. BROOME, S.W. 1974.

PROPAGATION OF SPARTINA ALTERNIFLORA FOR SUBSTRATE STABILIZATION AND MARSH DEVELOPMENT.

U.S. ARMY CORPS OF ENGINEERS. CERC TECH. MEMO. NO. 46. 55 PP.

REF. NO.-0295 (CONTINUED)

TECHNIQUES WERE DEVELOPED FOR PROPAGATION OF SPARTINA ALTERNIFLORA LOISEL., SMOOTH CORDGRASS, IN THE INTERTIDAL ZONE ON DREDGED SPOIL AND ERODING SHORELINES. BOTH SEEDING AND TRANSPLANTING METHODS WERE SUCCESSFUL. TRANSPLANTS PROVED TO BE MORE TOLERANT OF RIGOROUS CONDITIONS SUCH AS STORM WAVES AND BLOWING SAND, BUT SEEDING WAS MORE ECONOMICAL AND WAS SUCCESSFUL ON PROTECTED SITES. VEGETATIVE DEVELOPMENT OF SEEDED AND TRANSPLANTED AREAS WAS RAPID WITH PRIMARY PRODUCTION EQUAL TO THAT OF A LONG ESTABLISHED MARSH BY THE SECOND GROWING SEASON. AT THE END OF THE FIRST GROWING SEASON, MORE PLANT COVER WAS PRODUCED FROM SEEDING AT THE RATE OF 100 VIABLE SEEDS PER SQUARE METER THAN FROM TRANSPLANTING SINGLE- STEM PLANTS ON A 0.9-METER SPACING. THE RELATIONSHIP OF MINERAL NUTRITION TO PRODUCTIVITY OF S. ALTERNIFLORA WAS DETERMINED. PLANTS AND SOILS IN NATURAL STANDS WERE SAMPLED AND ANALYZED FOR PRODUCTIVITY INTERRELATIONSHIPS USING MULTIPLE REGRESSION TECHNIQUES. SALINITY OF THE SOIL SOLUTION, PLANT AND SOIL MANGANESE CONCENTRATIONS, AND PLANT SULFUR CONCENTRATIONS WERE NEGATIVELY ASSOCIATED WITH ABOVEGROUND PRODUCTION. VARIABLES POSITIVELY ASSOCIATED WITH PRODUCTION INCLUDED PHOSPHORUS CONCENTRATION IN THE PLANT TISSUE AND IN THE SOIL. FERTILIZER EXPERIMENTS SHOWED THAT THE PRODUCTION OF A NATURAL STAND OF S. ALTERNIFLORA GROWING ON SAND WAS INCREASED SIGNIFICANTLY BY ADDITIONS OF NITROGEN AND INCREASES THREEFOLD WHEN BOTH NITROGEN AND PHOSPHORUS WERE ADDED. THE PRODUCTION OF NATURAL MARSH GROWING ON FINER-TEXTURED SEDIMENTS DOUBLED WHEN NITROGEN WAS ADDED, BUT THERE WAS NO RESPONSE TO PHOSPHORUS. NITROGEN AND PHOSPHORUS FERTILIZERS ALSO ENHANCED GROWTH OF TRANSPLANTS AND SEEDLINGS ON SANDY DREDGE MATERIAL. (AUTHOR ABSTRACT)

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0315

WOODHOUSE, W.W., JR. SENECA, E.D. COOPER, A.W. 1968.

USE OF SEA OATS FOR DUNE STABILIZATION IN THE SOUTHEAST.

SHORE AND BEACH 36(2):15-21.

SEA OATS (UNIOLA PANICULATA L.) IS THE DOMINANT DUNE GRASS IN THE SOUTHEASTERN UNITED STATES. HOWEVER, IT HAS BEEN LESS USED FOR DUNE STABILIZATION THAN HAS AMERICAN BEACHGRASS (AMMOPHILA BREVILIGULATA FERN.) BECAUSE OF DIFFICULTIES IN SEEDING AND TRANSPLANTING. THE AUTHORS DESCRIBE RESULTS OF A STUDY ON SEA OATS ANATOMY, SEED GERMINATION, AND SEEDLING GROWTH THAT INDICATES THAT SEA OATS COULD BE USED SOUTH OF NORTH CAROLINA AND ALONG THE GULF COAST INSTEAD OF OR IN ADDITION TO AMERICAN BEACHGRASS. SEA OATS ARE MUCH MORE TOLERANT OF SALT SPRAY AND MIGHT STABILIZE DUNES WHERE BEACHGRASS FAILS.

NATURE OF REFERENCE: BIO

TYPE OF REFERENCE: PUB

DESCRIPTORS: PROTECT, LAND PLANTS, CR 3, CR 4, CR 5

****
REF. NO.-0543

WOODHOUSE, W.W., JR. HANES, R.E. 1967.

DUNE STABILIZATION WITH VEGETATION ON THE OUTER BANKS OF NORTH CAROLINA.

U.S. ARMY CORPS OF ENGINEERS. CERC TECH. MEMO. NO. 22. 45 PP.

EXPERIMENTS AT THE SHORE AND IN THE NURSERY WERE CONDUCTED TO DEVELOP AN ACCELERATED AND MORE EFFECTIVE REVEGETATION PROGRAM ON BEACH AND DUNE AREAS. FOUR GRASSES SHOW PROMISE: AMERICAN BEACHGRASS, SEA OATS, DUNE PANIC GRASS, AND SALTMEADOW CORDGRASS. RANDOMIZED BLOCKS OF PLANTINGS, WITH AT LEAST THREE REPLICATIONS, WERE USED IN THE EXPERIMENTS. COMPARISON OF VARIOUS METHODS OF PRODUCING NURSERY STOCK. TRANSPLANTING AT SHORE AND FERTILIZATION PRODUCED POSITIVE RESULTS SHOWN IN FIGURES, TABLES AND PHOTGRAPHS. THE MOST PRACTICAL AND ECONOMICAL METHODS FOR EACH STEP OF THE PROGRAM ARE SUGGESTED.

NATURE OF REFFRENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0374

WORK, R. UNDATED.

OBSERVATIONS ON THE FAUNA AND FLORA IN THE VICINITY OF THE FLORIDA KEYS BRIDGES AND APPROACHES.

PP. 21-91 IN: H.W. LOCHNER, INC. BIOLOGICAL CONSIDERATIONS FOR THE FLORIDA KEYS BRIDGE REPLACEMENT PROGRAM. SUPPL REP.

THIS DOCUMENT IS A LISTING OF SPECIES OF PLANTS AND ANIMALS WHICH OCCUR ALONG THE FLORIDA KEYS BRIDGES. TAKEN ISLAND-BY-ISLAND, BOTH ENDS AND BOTH SIDES OF EACH BRIDGE AND ITS APPROACHES ARE DISCUSSED. PLANT AND ANIMAL COMMUNITIES ARE NOTED AND SPECIES DIVERSITY AND COMPOSITION ARE INDICATED. THERE ARE NO CONCLUSIONS BUT THE DESCRIPTIONS OF THE BIOTA ARE CONDUSIVE TO AN UNDERSTANDING OF THE AREAS CONCERNED.

NATURE OF REFFRENCE: BIO

TYPE OF REFERENCE: UNPUB

DESCRIPTORS: LAND PLANTS, AQUATIC PLANTS, CR 4, INVERTEBRATES, SHELLFISH

****
REF. NO.-0400

YANGGEN, D.A. JOHNSON, C.D. LEE, G.B. MASSIE, L.R. MULCAHY, L.F. RUFF, R.L. SCHOENEMANN, J.A. 1976.

WISCONSIN WETLANDS.

WISC. BD. SOIL AND WATER CONSERV. DIST., WISC. DEPT. NAT. RES. 28 PP.

WETLANDS AS PHYSICAL FEATURES IN TERMS OF THEIR WATER, SOIL, PLANT AND ANIMAL COMMUNITIES ARE

DISCUSSED. ALSO REVIEWED ARE WETLANDS AS RESOURCES THAT PROVIDE VALUABLE NATURAL FUNCTIONS WHICH CAN BE ALTERED FOR URBAN DEVELOPMENT, AGRICULTURAL PRODUCTION, AND OTHER USES. WETLANDS ARE AN INCREASINGLY IMPORTANT RESOURCE BECAUSE OF THE MANY DEMANDS PUT ON THEM AND THE LARGE NUMBER CONVERTED TO OTHER USES. THE VALUES OF ALTERNATIVE WETLAND USES, WHO PAYS THE COST, WHO RECEIVES THE BENEFITS, PUBLIC AND PRIVATE RIGHTS IN WETLANDS, AND PRESENT LAWS MUST BE CONSIDERED IN WETLAND MANAGEMENT.

NATURE OF REFERENCE: BIO

TYPE OF REFERFNCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

****
REF. NO.-0138

YASSO, W.E. HARTMAN, E.M., JR. 1975.

BEACH FORMS AND COASTAL PROCESSES.

MARINE ECOSYSTEMS ANALYSIS PROGRAM. NEW YORK BIGHT PROJ. MONOGRAPH 11. SEA GRANT INST. ALBANY, NY. 54 PP.

MAN OFTEN BUILDS INTO THE COASTAL ZONE WITHOUT THE PROPER CONSIDERATIONS. RESORTS HAVE DEVELOPED WITHIN THE HISTORICAL ZONE OF SHORELINE MIGRATION AND IN MANY AREAS, VEGETATED DUNES HAVE BEEN LOWERED OFTEN WITH DEVASTATING RESULTS WHEN STORMS HIT UNPROTECTED AREAS. WHERE EXTENSIVE DUNES AND BEACHES PROTECT SHORE DEVELOPMENTS, AND WHERE THERE IS ABUNDENT BEACH SAND, PROTECTIVE STRUCTURES MAY NOT BE REQUIRED. BUT WHERE CONSTRUCTION ENCROACHES ONTO AN ERODING BEACH, SHORE PROTECTION MAY BE NECESSARY. ATTEMPTS TO HALT EROSION AND TO TRAP SAND ALONG A LIMITED STRETCH OF BEACH ARE DIFFICULT, COSTLY AND OFTEN INEFFECTIVE. ACTION TO PRESERVE BEACHES SHOULD BE UNDERTAKEN ONLY FOLLOWING A COMPREHENSIVE PLAN THAT CONSIDERS THE EROSION PROBLEM OF THE ENTIRE SHORELINE. DISCUSSED, WITH RESPECT TO RELATIVE COST AND EFFECTIVENESS ARE BULKHEADS AND SEAWALLS, REVETMENTS, GROINS, JETTIES, ARTIFICIAL BEACH NOURISHMENT AND DUNE STABILIZATION. THEORIES OF NET LITTORAL DRIFT STORM CONDITIONS AND RISING SEA LEVELS ARE DISCUSSED FOR THE NEW YORK BIGHT COASTLINE.

NATURE OF REFERENCE: ENG

TYPE OF REFERENCE: PUB

DESCRIPTORS: BULKHEAD, PROTECT, GROIN, TRAINING, JETTY, STABILIZE, LITTORAL PROCESSES, CR 6, CR 7, REVETMENT

****
REF. NO.-0277

ZUMBERGE, J.H. WILSON, J.T. 1953.

EFFECT OF ICE ON SHORE DEVELOPMENT.

PROC. 4TH CONF. ON COASTAL ENG. CHICAGO, ILL. PP. 201-206.

REF. NO.-0277 (CONTINUED)

ICE-FOOT DEVELOPMENT ALONG THE GREAT LAKES IS DISCUSSED. AUTHORS INDICATE A NEED FOR RESEARCH INTO THE IMPACT OF ICE ON NORMAL SHORELINE PROCESSES. IT IS SUGGESTED THAT ICE BUILD-UP ON SHORE HAS A PROTECTIVE VALUE BUT ALSO PRODUCES SCOURING COMPLICATIONS.

NATURE OF REFERENCE: GENERAL

TYPE OF REFERENCE: PUB

DESCRIPTORS: RELATED BUT NOT APPLICABLE TO THIS STUDY

☆ U.S. GOVERNMENT PRINTING OFFICE: 1980—676-972

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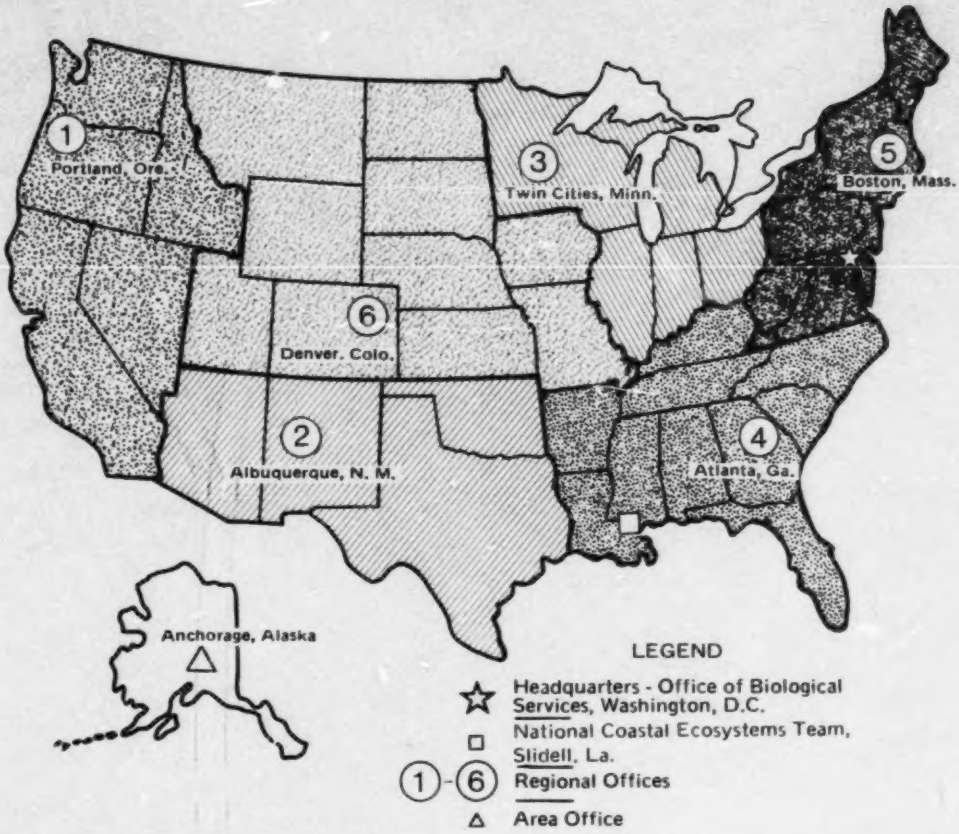

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